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JUNE 12, 1967

RAILWAY AGE

THE TRANSPORTATION WEEKLY

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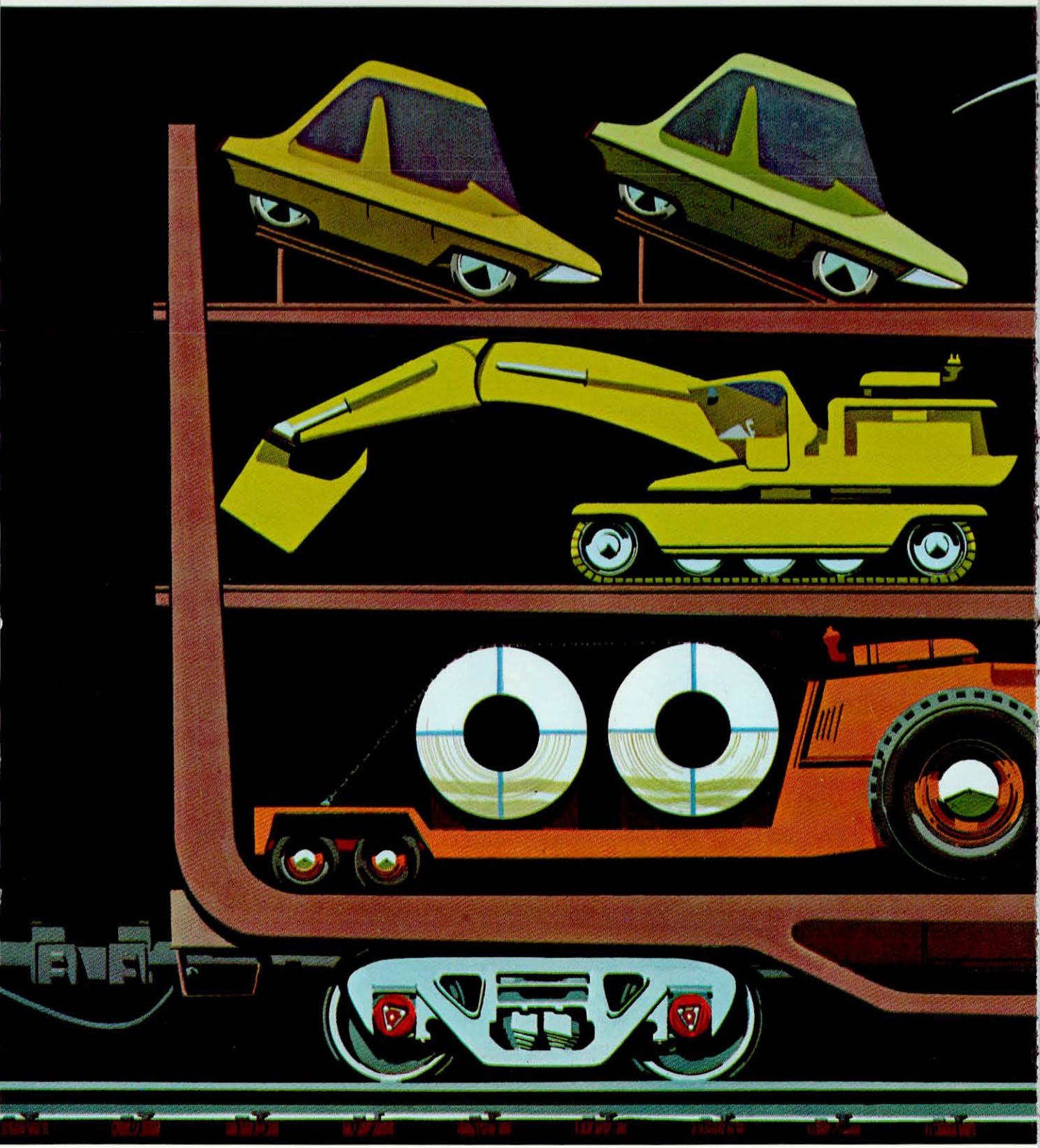

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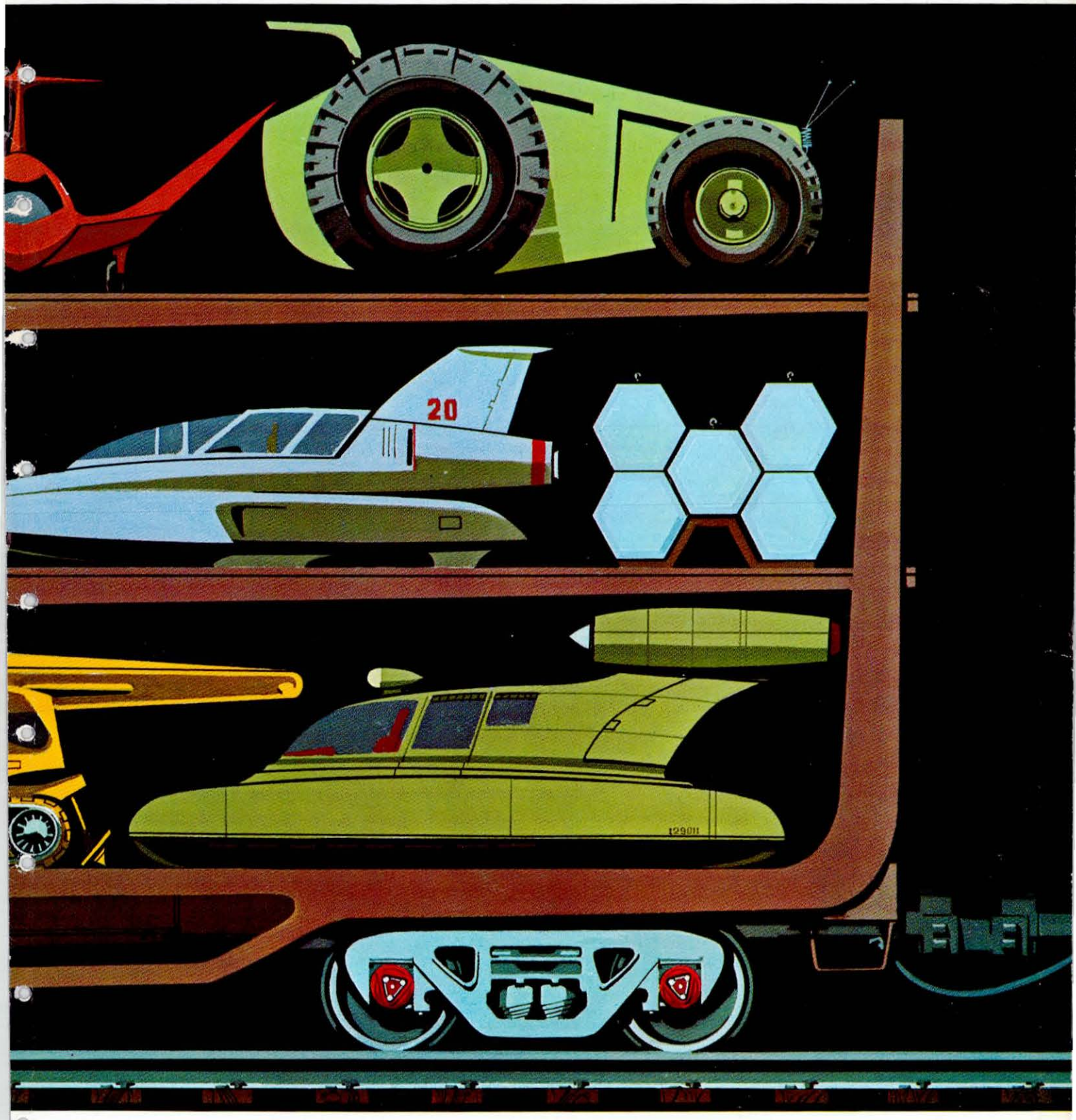
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RAILWAY AGE

June 12, 1967 • Vol. 162, No. 23

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HIGH-SPEED TRACKS:

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Edward J. Ward tells Railway Age readers about the extensive research done by the Office of High Speed Ground Transportation on the type of tracks and roadbeds needed for high speed trains.

22 On/off track machines can do more

A lot of extra production time can be created for track forces by machines with the ability to work both on and off rails.

40 Viewpoint—the big sell: Price? Profit?

Have railroads, emphasizing high volume and low cost, overlooked a potential in premium-type operations based strictly on service?

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Compared to an equivalent steel car an aluminum car earns more for you. And, provides higher car utilization and more versatility in lading.

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5 Profit Point

to every road in the country, the signals are clear... aluminum is today's answer to tomorrow's rising costs!

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For documented economic studies substantiating the profit advantages of aluminum cars in modern railroading and for specific ideas in aluminum, write Dan Donahoe, Manager, Railroad Industry Sales, Kaiser Aluminum, O'Hare East Building, 9501 West Devon Avenue, Rosemont, Illinois 60018.

Subsequent ads in this series will highlight the other profit points.

SHORT AND SIGNIFICANT

Hardin and Syphers nominated for ICC

President Johnson last week sent to the Senate his nomination of Dale W. Hardin, 44, and Grant E. Syphers, 56, for memberships on the ICC. When confirmed by the Senate, as expected, Hardin will succeed former commissioner Charles A. Webb for the remainder of a term ending Dec. 31, 1972, and Syphers will succeed Commissioner Abe McGregor Goff for the remainder of the term expiring Dec. 31, 1973. Webb resigned to become president of the National Association of Motor Bus Owners. Goff's term expired at the end of last year, but he has continued to serve under that provision of the Interstate Commerce Act which leaves a Commissioner on the job until his successor qualifies. Hardin, special counsel for American Trucking Associations in Washington, is a former manager of the Transportation and Communications Department of the U.S. Chamber of Commerce. Syphers is director of the California Public Utilities Commission's Southern California area in Los Angeles. Like Webb and Goff, the nominees are Republican.

●

Capital outlays for '67 take big drop

Railroad capital expenditures for 1967 are now expected to total $1.53 billion, down 22.6% from 1966's $1.98 billion. The latest quarterly survey of the Department of Commerce and Securities & Exchange Commission also shows that this year's outlays have been on an annual-basis level of $1.5 billion since the first quarter when they were on a $1.8 billion basis.

●

GATX to build test container for USDA

The U.S. Department of Agriculture has given General American Transportation Corp. a $40,400 contract to build and test a prototype van container for transporting and handling food products. GATX will build the 40-foot multi-purpose van to specifications developed by USDA's Agricultural Research Service. With modifications, the unit will maintain specified temperatures and humidities inside the van while outside temperatures are maintained at 0 or 100 degrees Fahrenheit.

●

CN sets up top-level marketing operation

The principal marketing activities of Canadian National will now be coordinated under a new office—that of vice-president, marketing. A. H. Hart, 48, formerly vice president, freight sales, will take over the new position. He will have jurisdiction over the marketing of carload freight, passenger and express freight services. CN President N. M. MacMillan, Q.C., said the move is "a planned phase of CN's continuing drive to orient itself to the needs of present and potential customers through the use of the most modern marketing techniques available. It underlines the increasing importance we are placing on a total marketing effort." George R. Johnson, 53, assistant vice president, freight sales, will assume direct functional responsibility for carload freight sales.

●

Reading's "Bee-Line" offers coal-line service

The Reading has put its famed "Bee-Line" service to work hauling coal for customers who want quick delivery. Last week, a five-car freight carrying more than 370 tons of anthracite coal made the 61-mile run from Mammoth Breaker in the Anthracite region of Pennsylvania to Reading in just under five hours. In two shipments handled thus far, Bee-Line trains picked up coal at Mammoth Breaker at 4:30 A.M. and delivered it to the consignee's tracks at about 8:50 A.M. the same morning. The crews went off duty 25 minutes later. Reading believes that its new service can easily compete with the trucking industry for anthracite deliveries along the system.

MONDAY MORNING REPORT

Trucks and trains: Shoe on the other foot?

If there were any long-haul truck company operators sitting in at the Southwest Shippers Advisory Board annual meeting in Oklahoma City a few weeks ago they probably felt like railroadmen. That is, the way railroadmen *used* to feel a few years ago whenever the competition was mentioned and the outlook for the future was spelled out. But this time in Oklahoma City it was the truckers' turn to hear some uncomforting words about their industry's future and how the competition was out to beat the pants off them. To railroadmen, the words of Dr. James A. Constantin, professor of marketing and transportation at the University of Oklahoma, should have a soothing effect. To truckers, they could mean sleepless nights.

Getting the goods on the truckers

Borrowing from the song in "Music Man," the truckers are in for Trouble with a capital "T." In the opinion of Dr. Constantin, the current renaissance in railroading is going to have a far-reaching effect on the long-haul motor carriers. "The railroads are causing them all kinds of problems today, and I think that what the railroads have done to the long-haul automobile carriers, they are in the process of doing to the general commodity carriers. I suspect that within a decade there will be relatively little long-haul transportation by motor carriers. And when I speak of long-haul, I am speaking of 400 or 500 miles."

Look Ma, no trucks!

Any Volkswagen owner who has ever felt caught in a cat-and-mouse game with a thundering truck on a highway will be cheered by Dr. Constantin's forecast. Whether it will come to pass in the next decade is something else again. But one thing that does appear certain is that sweeping changes in the transportation industry will continue—and at an accelerating pace. Planners and transportation people are already talking of a reconcentration of industry and a reconcentration of population. It is on this basis that the experts see the railroad as being *the* carrier of the future, providing long-haul service that is faster, cheaper and offers the same flexibility as the truckers. The fall of the long-haul motor carrier, say the observers, will be caused by the increasing movement of manufactured goods and bulk commodities on trainload rates.

Some new ideas and new ways to use them

The truckers are in trouble today because, as Dr. Constantin sees it, the railroads have accepted and developed new ideas of physical distribution and evolved a new concept in management science. "As a result of these new concepts," he adds, "rate making began to take into consideration the consumer and the shipper, rather than being predicated solely on a desire to increase revenues. Multi-car rates, trainload rates, piggyback operations, faster schedules, and other innovations came into being, all enhancing the position of the rail carriers in their competition with other modes of transportation."

Running competition

The performance of the rail industry in the past 10 years has certainly been impressive. In auto carrying alone, the railroads have been able to recover from the truckers a hefty portion of the lucrative auto traffic (rail traffic is now about 50% of the total), and piggyback figures continue to climb. The long-haul trucker, despite predictions, could still be with us 10 years from now. And if he is, he'll still be getting a run for the money.

14,633 "Yards" of experience back up *Speed Frate* Systems

That's 43,899 feet of car retarders GRS has supplied. Of course, we had a head start—the first retarder ever sold bore the GRS trademark—way back in 1926.

Since then, we've kept right on optimizing car classification with more "firsts"—automatic switching, radar speed control, computer technology. And now, it's Speed Frate.

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RAILWAY AGE
WEEKLY

JUNE 12, 1967

WEEK AT A GLANCE

Greyhound and REA Express drop stock sale plan

Plans of the Greyhound Corp. to acquire an interest in REA Express have been thwarted by delay. The knockout blow came in a June 5 U.S. Supreme Court decision directing the ICC to reconsider its order authorizing Greyhound to acquire an initial 20% of REA stock. That ruling was followed by a Greyhound-REA announcement that delays caused by the litigation and other complications would kill the acquisition plan.

"The parties," said REA Express President William J. Taylor, "have mutually agreed to terminate the transaction. I regret that the public will be denied the many opportunities which the transaction would have offered for improvement and greater competition in the critical area of small shipments transportation."

It was some two years ago that the ICC, without hearing, authorized the proposed 20% (500,000 shares) Greyhound interest in REA. The acquisition plan contemplated that the bus line would later acquire additional shares. Subsequently, issues of control of REA and curtailment of competition in the transport field were raised. The Commission deferred consideration of them until it was confronted with specifics.

The Commission's decision was taken to court, the appellants including five dissident western railroads and several bus and truck lines. The lower court sustained the Commission, but the Supreme Court held that only the control phase could be deferred. It ordered the case sent back for consideration at this time of the curtailment-of-competition phase. It was a 6-3 decision embodied in an opinion by Justice William J. Brennan, Jr. A concurring-in-part and a dissenting-in-part expression came from Justice Byron R. White, and a dissent was filed by Justice John M. Harlan with whom Justice Potter Stewart agreed.

High court decides for railroad in Rio Grande-BRT case

The Rio Grande won a stunning victory over the Brotherhood of Railroad Trainmen in the U.S. Supreme Court last week. Reversing the Circuit Court of Appeals for the 10th Circuit, the high court held that the railroad had a right to sue in the federal district court at Denver for damages resulting from an allegedly illegal strike to enforce National Railroad Adjustment Board awards.

The union contended that the suit should have been filed in the district where its headquarters are—Cleveland. The Supreme Court's ruling, in an opinion by Justice Byron White, is that a union can be sued wherever it is doing business. It was a 6-3 decision. Justice Hugo L. Black filed a dissent, to which Justice William O. Douglas and Abe Fortas subscribed.

Railroad "cost of living" index showed rise in April

U.S. railroads paid 3.9% more for their fuel, material and supplies in April than they did in the corresponding month a year ago. A quarterly survey of the AAR's Bureau of Railway Economics showed a sharp rise in the price index following seven years of relative stability in prices generally. The index hit a high of 106.9 compared with 102.9 on April 1, 1966 and the 1957-1959 average of 100. Over the past few years modest increases in the cost of materials other than fuel were offset by concurrent reductions in fuel prices.

Prices for parts used in the repair and maintenance of diesel locomotives have registered the greatest yearly increases. Parts for diesel engine pistons, for example, have jumped 16%. There were also substantial price increases in the cost of forest products used in right-of-way work and car construction. Since the 1957-1959 base period, prices of forest products have risen 17.6%.

April Price Index
Fuel, Material and Supplies
(Average 1957-1959=100)

	1966	1967
Fuel (coal & oil)	93.8	95.8
Forest products	113.0	117.6
Iron & steel products	105.2	107.6
Miscellaneous products	105.7	112.0
Total, excluding fuel	106.2	110.8
Total, including fuel	102.9	106.9

Forty hours to the West Coast—for freight

Santa Fe is getting set to go with a new premium freight service for TOFC/COFC traffic from Chicago to Los Angeles—on a 40-hour schedule. By any measure, that's speed. Santa Fe's "Super Chief" doesn't make the run any faster; and the fastest current freight schedule is about 59 hours. President John S. Reed outlines his road's thinking this way: "We're very interested in developing new sources of high-rated freight traffic. Our market research, technical research, cost analysis and operating departments have been studying the matter for months. These studies indicate that the new premium service will attract high-rated traffic now moving via other forms of transportation and stop potential inroads into our existing traffic by these other carriers."

Operation simulation on a computer and actual operating tests, Santa Fe says, have confirmed that the 40-hour card can be met. Processing of tariffs is under way. Will this move lead to establishment of a new coast-to-coast premium service? Perhaps. Santa Fe notes that research is under way in connection with inaugurating this type of through, fast, premium freight service that would offer third-morning delivery from New York to Los Angeles via Chicago or other Illinois points.

GUS WELTY'S LINES ON LABOR

WELTY

WELL, THE BLE's negotiators got a 6% raise for the membership. One can now expect the weeps and the wails from the other ops and the non-ops who amicably signed up for a mere 5%. After all, that 6% for the Engineers "broke the industry-wide pattern." Or, on second thought, did it? Will the early-signers get nasty about the extra 1% the BLE got? Would the early-signers accept the additional 1% on the same terms the BLE got? There's at least a suspicion that thinking men would give a "no" to all three questions. And there would seem to be valid reasons for the "no," even if some elements of the rank-and-file find them hard to understand.

TIME AND MONEY are the main factors involved. And they're inter-related. Take, for instance, the situation among the ops. The BLE got 6%, retroactive to last August. No further change in rates can be made before July 1968. Three other operating unions, led by the BRT, took 5%, also retroactive. But for these organizations, reopening time can come in September, and changes can be made effective in January. Non-ops who accepted 5% also accepted an extended no-change period. But in return, they got an agreement providing for a 2½% increase next year.

IT'S A GAMBLE, perhaps, for those who are satisfied with what they've signed. But a realistic appraisal of the situation indicates that it's not so risky a gamble as is, for example, betting that the Chicago Cubs will finish in the first division (of the National League, not the National Railroad Adjustment Board).

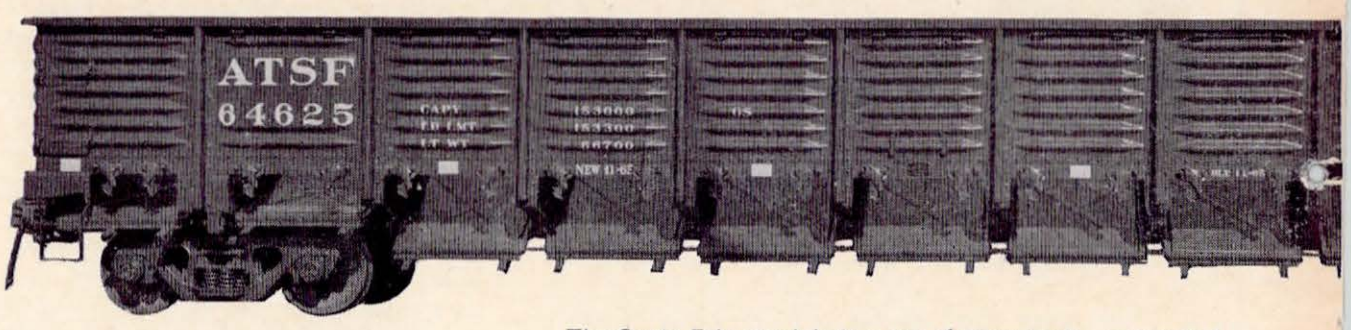
TRYING TO FIGURE wage rates in the operating crafts is no job for a fellow who passed high-school algebra by good guesswork. But if you think for a minute like a union leader, you have to think you'll get some kind of increase just about every time you ask for one. This may not be good economics, but it's close to being historical fact. So, if you plod along for 16 months getting a slightly smaller percentage-of-increase than the other guy and then you get another increase while he's held off for six months, you've got a good chance of coming out ahead—for a while, or until he starts playing catch-up again.

WHATEVER ELSE you might say about them, union leaders do tend to be realists. They know there's only so-much money available, only so-big a pot to be split. They're also finding that it can be bad internal politics to let initial demands get so far out of line that the settlement looks like a piece of green cheese. Anybody want to bet that, next time around, some form of moderation will set in?

The Pennsy's all-weather gondola has Standard corrugated sides . . . Standard coupler release rigging and dreadnaught steel ends . . . Standard 3-piece removable roof with inspection hatch.

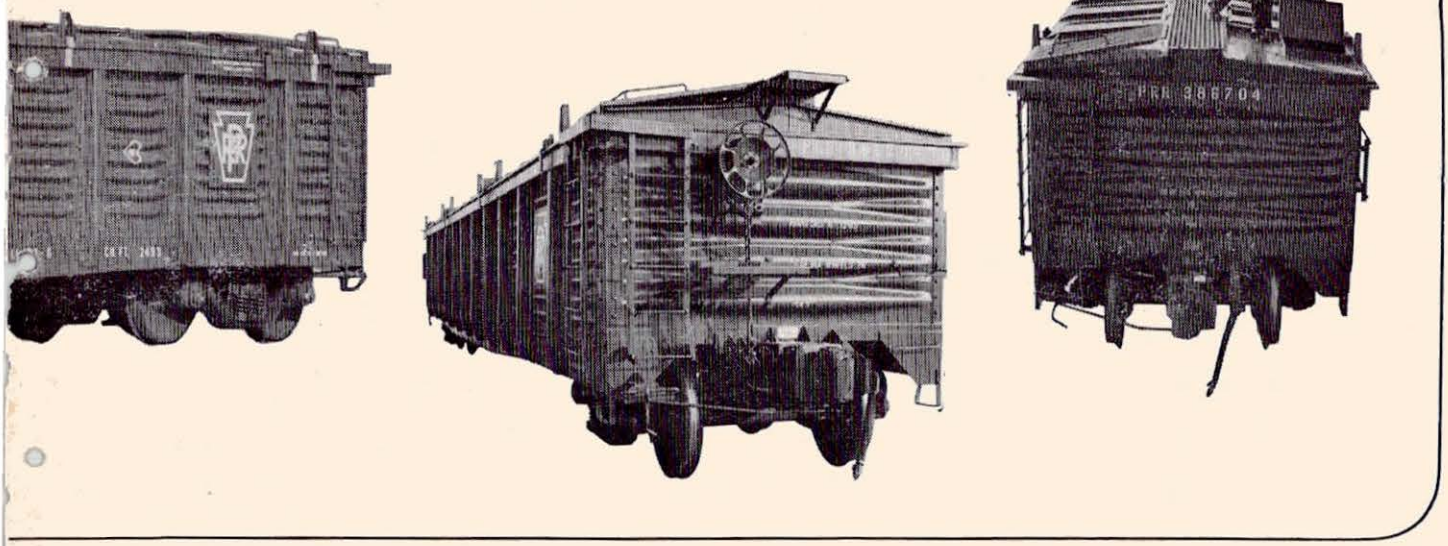
On these rugged new gondolas...

Quality parts are

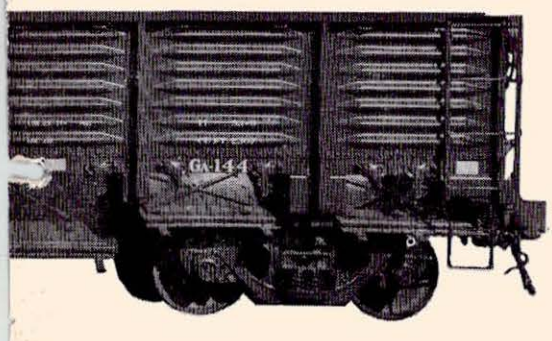


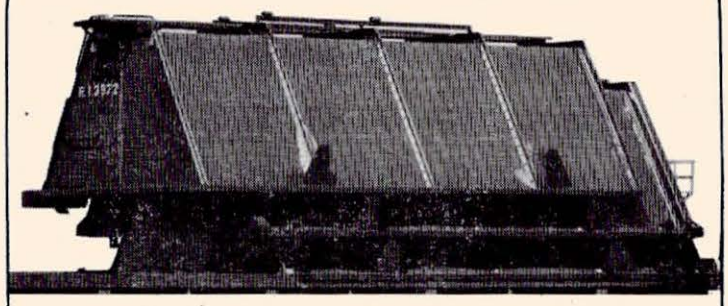
The Santa Fe's gondola is a car of many parts—corrugated sides, drop doors, corner posts, dreadnaught steel ends, coupler release rigging—all by Standard Railway Equipment.

Make sure of quality parts all the way—make 'em *Standard* equipment.
For information, please phone your Standard representative.



Standard equipment





The Rock Island uses this Standard Model 75 Roof to give boxcar protection to gondola cargoes. Removable roof stacks in three sections, has about 75% boxcar capacity.

STANDARD RAILWAY EQUIPMENT
division of STANRAY CORPORATION
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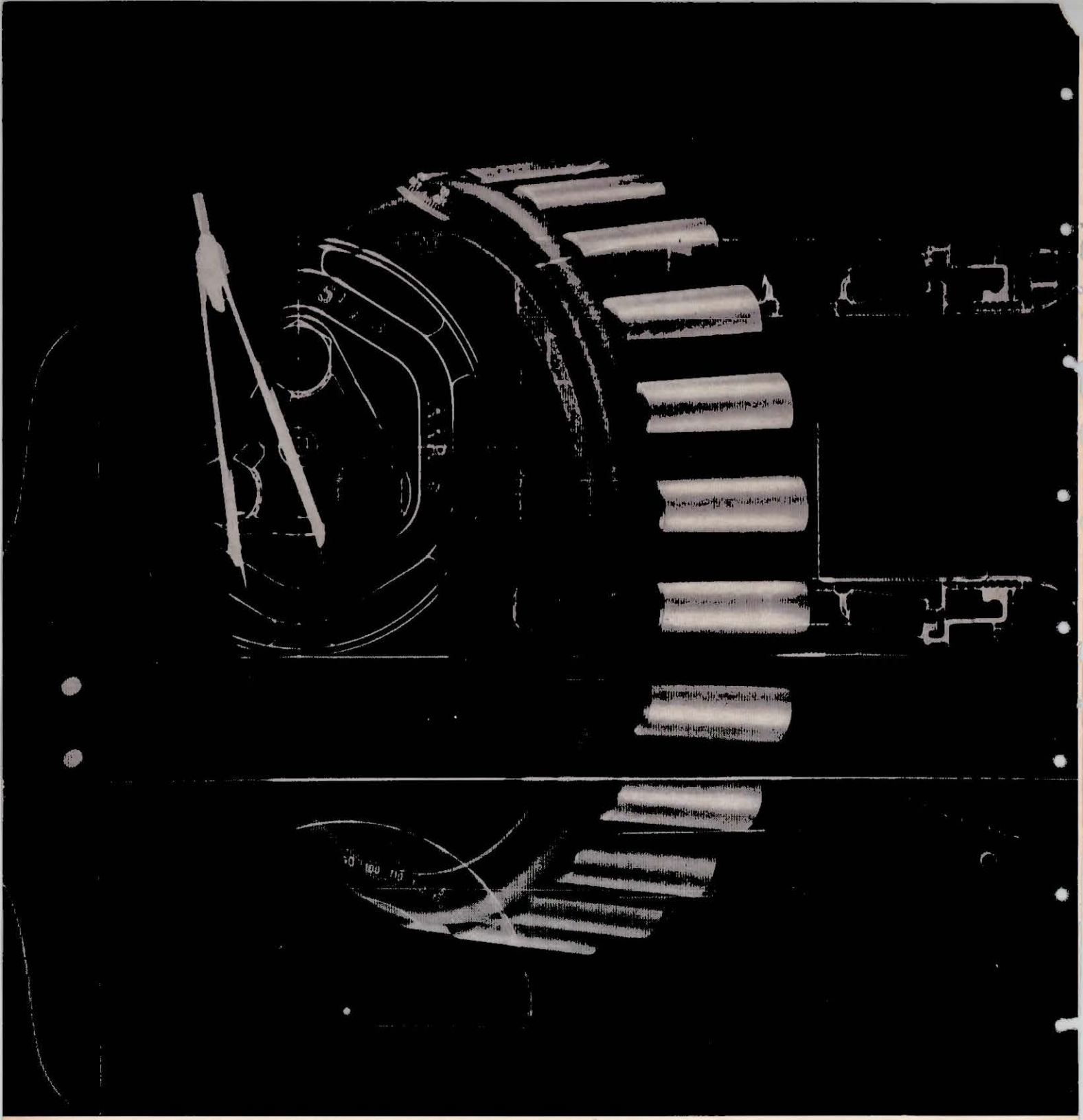

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Brenco *crown-taper* roller bearings are the most modern of all.

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An exclusive interview with Edward J. Ward

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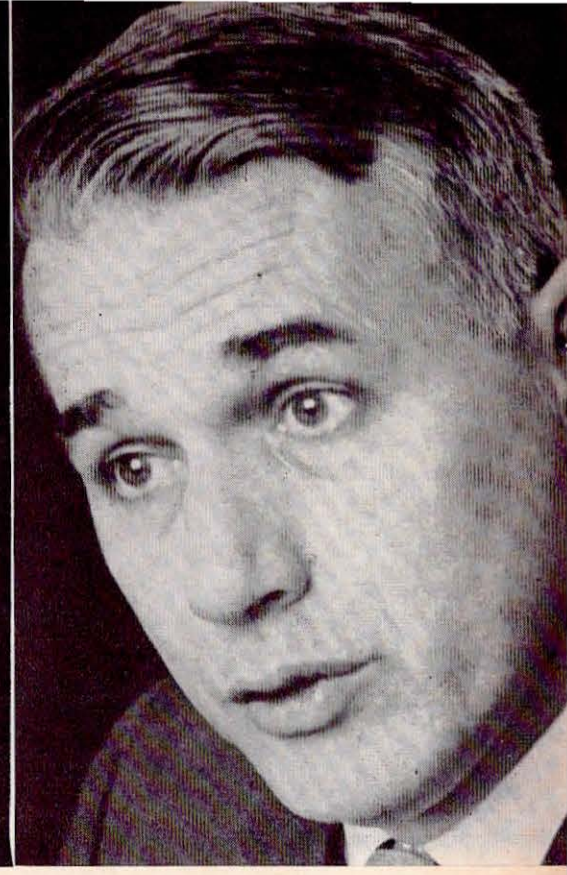


Washington looks for some answers

A few weeks ago a Department of Transportation high-speed research train streaked over a section of New Jersey test track at a record-setting 156 mph. The dramatic demonstration focused attention on efforts of D.O.T.'s Office of High Speed Ground Transportation to come up with a fast rail vehicle suitable to the Northeast Corridor. But the demonstration also called attention to something else. For the past year, working quietly, OHSGT has been conducting extensive research into the type of tracks and roadbeds necessary for high-speed operations. Here, in an exclusive interview, OHSGT's director of engineering, research and development, Edward J. Ward, tells Railway Age Engineering Editor M. H. Dick what Washington has learned thus far—and what it hopes to learn.

Q. Mr. Ward, will you please explain the objectives of the High Speed Ground Transportation project?

A. In describing these objectives I will go back a little in history and start with the Northeast Corridor project. HSGT grew out of the latter project. You probably remember that President Kennedy appointed a task force to look at the transportation problem in the Northeast Corridor. And that this task force recommended that a study be made of the alternatives in providing improved transportation between Boston and Washington. It also recommended that the project be assigned to the under secretary of commerce for transportation.

Luther Hodges, then Secretary of Commerce, set up the Northeast Corridor study and a project office was established under Robert A. Nelson [now director of the High Speed Ground Transportation project]. It was only a few months before the results of the investigation showed that they really couldn't do a good job of selecting alternatives unless some research and development were also done to reveal what technology could provide and what was available in new transportation. So, in 1965 a legislative request was prepared; the act was passed and signed by President Johnson on Sept. 30, 1965.

The High Speed Ground Transportation Research and Development Act provided for three parts: One was aimed at advancing the state of ground transportation. Ground transportation was defined as other than highways and operating on a closed right of way.

The second section provided for a program of demonstrations of improved rail passenger service. In fact the act was also drawn to permit demonstrations of other types of ground transportation. The demonstrations between Boston and New York and New York and Washington were set up under this section of the act.

Q. You said there was a third section of the act?

A. The third section came about because of the lack of good data on which to base transportation studies. So this section provides for developing

transportation information systems. An office has been set up to create a federal transportation data system to correlate information developed by all the seven government agencies which are collecting some kind of transportation data, and to determine what gaps exist and how to fill them.

I'm involved in the research and development part of it. We have divided this into two parts: rail and unconventional systems, the latter meaning anything in the way of tube vehicles, air-cushioned vehicles, or any other exotic mode of transportation.

Q. Let's talk about the rail part of it first. Obviously, this includes the tests you are making on the 21-mile test track the PRR has established in New Jersey between Trenton and New Brunswick.

A. That's true. In fact that is really the largest part of our rail technology program so far. We have four test cars for operation over the PRR's test track and we have about half a million dollars worth of instrumentation in those cars. The total package embraced by the cars, the payment to the PRR to upgrade the track and the design and installation of the instrumentation comes to over $4 million. So we have put the major share of our rail technology program into this.

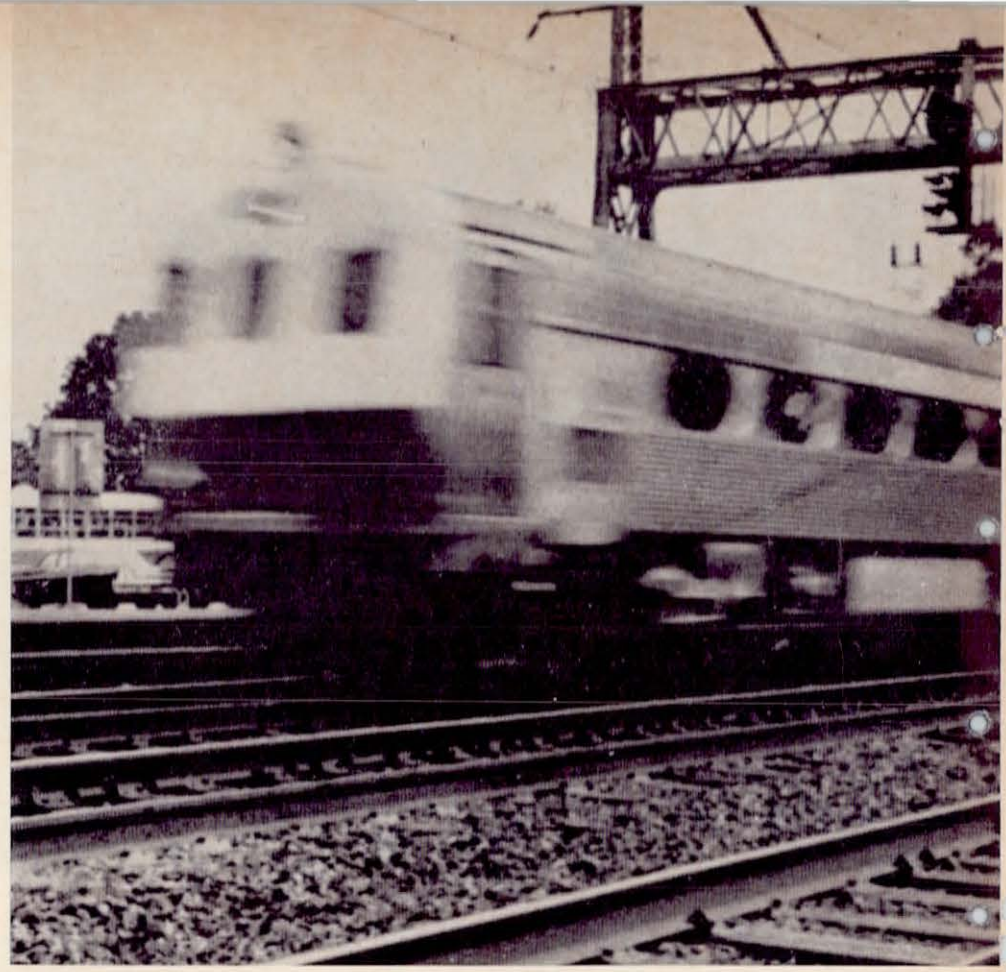
We also are doing work on track structures and have awarded contracts to Battelle Memorial Institute, the Carnegie Institute of Technology and the Materials Research & Development Corp., to make studies aimed at improving our track structures. We hope before very long to enter into a cooperative project with the AAR Research Center on track structure. We'd like to end up selecting some improved track designs and actually installing them on a section of the PRR that carries heavy freight traffic.

Q. How far along are you in selecting these improved types of track design?

A. We have gathered together all the suggested track designs which we could find in this country and abroad; we've even reviewed the Russian literature. Now we are in the process of screening to select the most promising before we make the final selection of those to be constructed.

Q. In your investigation of new track structures what are you looking for?

A. What we have in mind is a more



"With the high quality track the

stable track structure. We know that the present conventional track structure—rails, spikes, ties, ballast—can be installed to provide an excellent quality ride. This has been shown by experience on our test track, on the New Tokaido Line in Japan, and by the Munich-Augsburg demonstration of the German railways. The problem, as we see it, is that the track doesn't stay where you put it. Under heavy loads or high speeds you begin to get movement, you begin to get settlement, the track begins to shift out of alignment, and you have to perform maintenance.

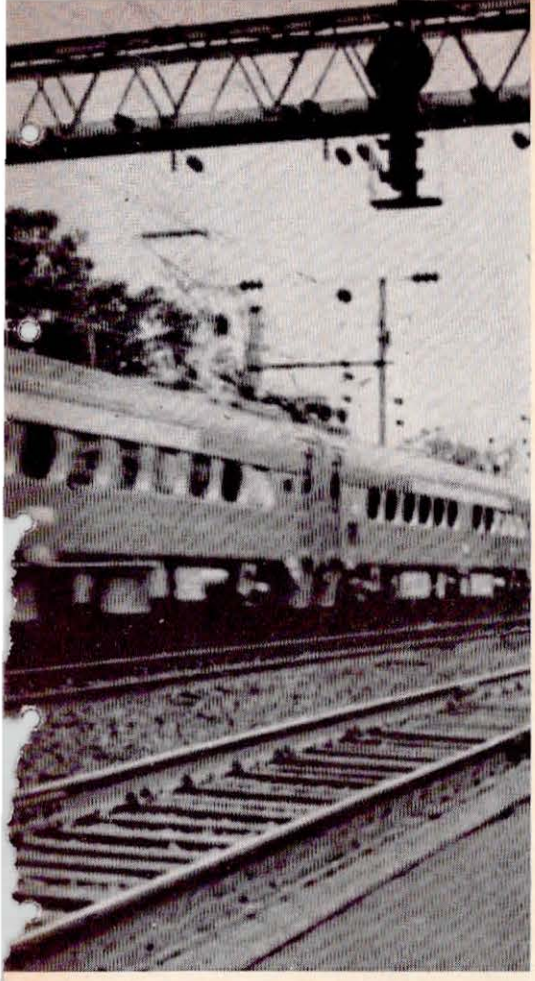
If we can devise a more stable track structure that will stay in position longer and reduce the need for maintenance—reduce the frequency of maintenance—then we think this will be a real step forward. Even if we have to pay a little bit more for the initial construction, if we can reduce the maintenance—and keep the quality of the ride up—we feel that progress will have been made.

Q. This particular part of the investigation is in the interest of the railroad industry generally, is it not? In other words, is it not your aim to develop a type of track structure that can be employed on any railroad to any extent desired, not just in the high-density territories where high speed is the main objective?

A. That's right. In fact, I'd like to point out that, under the HSGT Act, all of our activities are national in scope. In other words, the research and development, the data systems, and the demonstration activities are in no way confined to the Northeast Corridor. They provide information useful in all areas of the country. One of the demonstration runs, Auto-on-Train, for example, will be operated in the Southeast section of the country.

Q. You mentioned contracts awarded to the Battelle Memorial Institute and to several other private research groups. In a general way, what do these contracts cover?

A. Under the Battelle contract there has been developed a computer program which simulates the track structure from the rails down to under the soil. It's intended primarily to allow us to look at the dynamic response or the resiliency of track structure. What we'd like to do is to use some of the measurements we have made with our test cars and our wayside instrumentation to make sure that the computer program does simulate actual conditions.

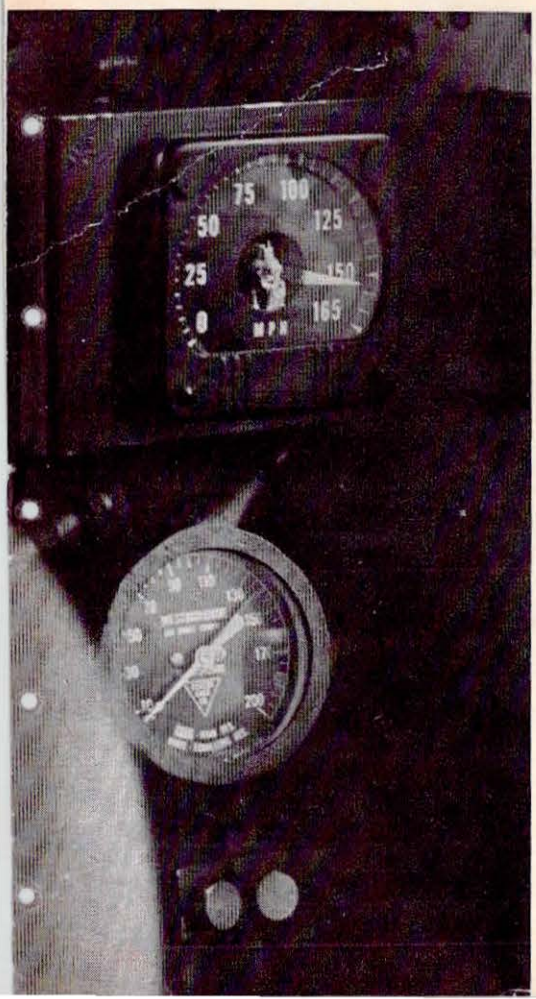


SLIGHT STREAMLINING added to original blunt front has added about 5 mph to the top speed of the test train.

D.O.T.-PRR TEST TRACK, 21 miles from New Brunswick to Trenton, N.J., was traversed in 11 minutes during record run.

ride up to 155 mph is excellent99

NEW RECORD: D.O.T. car speedometer inches over 150 mph on way to 156.



Then we can begin to put different components into a new track structure and see what the dynamic response will be to the passage of trains. In this way we hope to evaluate some of the new designs, and perhaps change these designs to give an even better response.

Q. As I understand it, by the use of measurements made with existing track you hope to develop simulated types of track construction in the computer program.

A. Yes, and to evaluate their dynamic response to the loads passing over them. You see, if we can measure on the test track the reaction of the rails as the wheels pass over them, and then if the computer program will give us the same response, we know we've got a good simulation of the track action. We can then begin to change components independently, and, if we get improved reactions, we can decide which types of track structure should be built and actually tested.

Q. What is the time element involved in a program of this sort?

A. We hope to make the selection of the track structures to be tested within the next six to nine months. We had hoped to start some construction during this summer and we may be able to select one or two designs and start construction and then make decisions on the other designs later. We think that within one to two years we can evaluate the stability of these new designs. It's true that more time will be needed to evaluate their reaction to the environment, that is, to determine the ability to stand up to changes in temperature and moisture and so forth.

But within the first year, by making frequent precise measurements with our track-measurement car, we think we'll be able to determine the stability of a track design. We will then be able to project the maintenance requirements and the maintenance cost.

Q. Am I correct in my assumption that you have in mind an entirely different type of track construction than we have today?

A. Oh yes, very definitely. In fact, this is exactly what we are looking for. If it's rail supported on crossties, we're really not interested. We think, for example, that the evaluations of concrete crossties which are going on now will take care of this type of thing. We're looking for more far-reaching changes.

We have said the only two things that must remain fixed are the railhead shape and the gauge—below that anything is subject to change—even the section of the rail itself beyond the shape of the head. However, the emphasis is really not on changing the rail; our emphasis is on changing the structure that supports the rail. We're really not trying to design new rail.

Q. You mentioned that you had awarded a contract to Materials Research & Development Corp. What does that contract cover?

A. Here we're taking a little less radical approach than we might in some of the other studies. This company came to us with an idea that they might be able to develop a plastic foam which could be impregnated to fill the voids in the ballast, much like you might use concrete grout with the idea of stabilizing the ballast, of shedding water and preventing fouling of the ballast. So we have them doing some studies to see if a plastic foam which is cheap enough to use can found that will provide this waterproof track structure. Ideally, we should have a foam which would be strong enough to help stabilize the bal-

last, but would not be so strong that it would interfere with mechanized track maintenance using tamping machines.

You know the Asphalt Institute has had for some years test sections on various railroads where they coated the top layer of ballast with an asphalt cement to do exactly the same thing, that is, waterproof without fouling the ballast. It works very well, and it does cut down the frequency with which you have to perform such jobs as surfacing the track or cleaning the ballast. But when you do these jobs you have to remove the asphalt before you can use your tamping machines and so forth, so this makes it expensive.

Q. What would be the main purpose of the plastic foam?

A. It would be to shed water, to prevent fouling of the ballast by dirt, etc., and to help stabilize the ballast. There's a very neat trick here if it can be done; something weak enough to let tampers go through but strong enough that will keep the pieces of ballast from moving around. There may not be any such material.

Q. What is the objective of the contract with Carnegie Institute of Technology?

A. What we are doing here is to look at methods of construction rather than any novel design. The use of concrete slabs has been proposed for many years, but has not been accepted in main-line operation because of the difficulty in re-leveling slabs which settle. Vertical walls underneath the slab will radically reduce the amount of settlement. But this added construction will increase the cost to an unacceptable level. Carnegie has been looking at the idea of using a narrow trencher, putting bentonite slurry into the ditch and thus eliminating the need for forms. The concrete can be immediately put in, displacing the bentonite slurry which can be recovered for reuse, and the concrete slab can be cast integrally with very thin vertical walls. Grouting would be used to re-level the slabs.

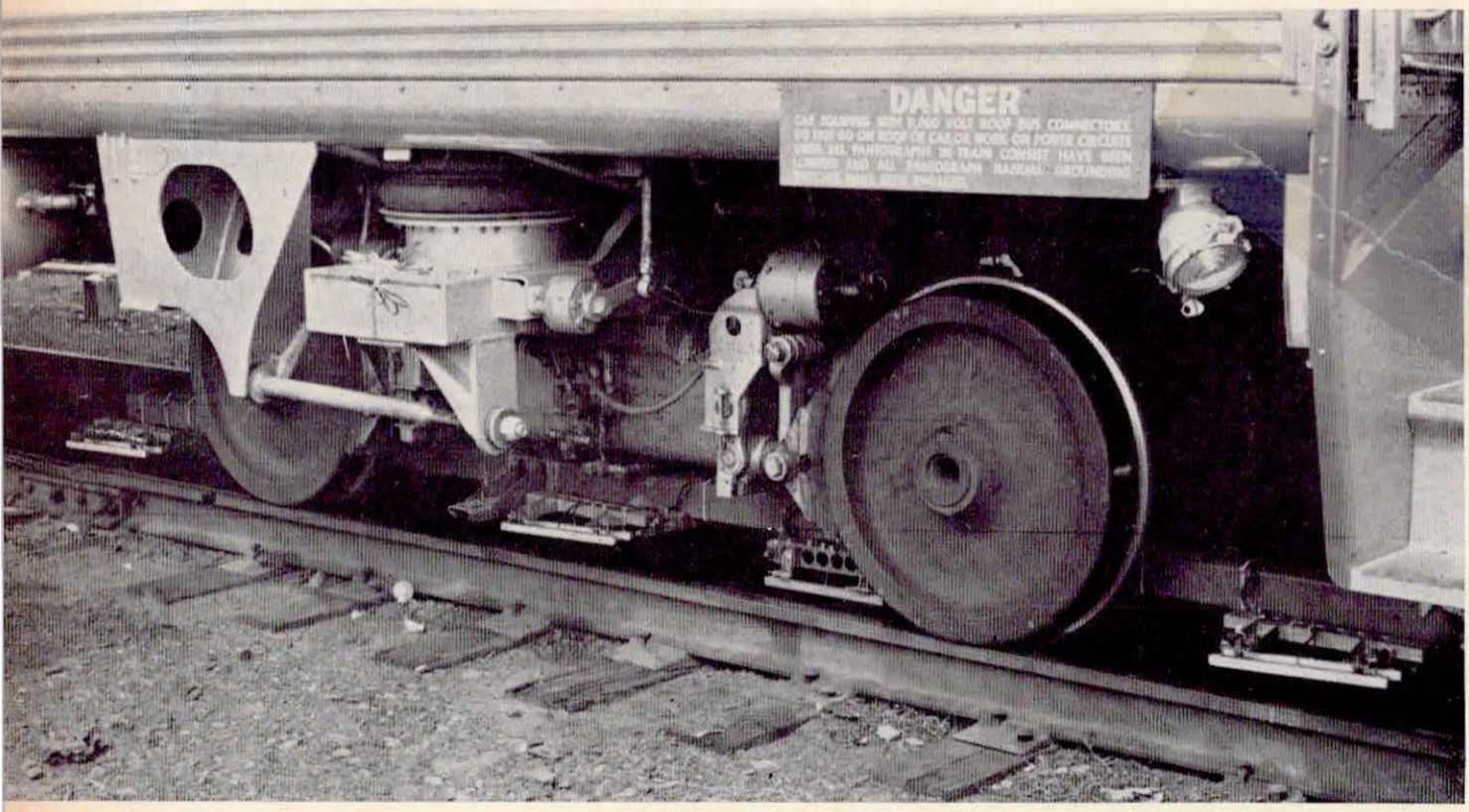
Q. What about the four test cars you have instrumented for use on the PRR test section?

A. They are electric MU cars. One contains a package of instrumentation which measures the characteristics of the track, that is the gauge, the level and alignment of each rail, the cross level and the warp or the distortion of the plane of the two rails. And it does this in a very precise way, through the use of proximity sensors which measure the electrical capacity of the air gap between the end of the sensor and the rail head.

This is something new, in that previous track-measurement instrumentation has employed a sensor of one kind or another which actually touches the rail head. The proximity sensors, in not touching the rail head, give us a lot of advantages in that there is no wear or abrasion. There's no problem with mechanical linkage due to the inertia of the sensor.

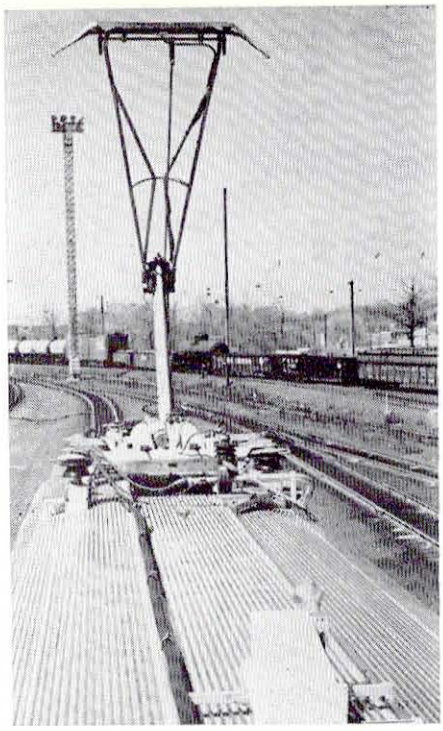
Q. How are the track measurements being recorded?

A. The electrical signals from the sensors are amplified and sent into either magnetic tape recorders or an oscillograph recorder on a paper chart. Or we can do both simultaneously. We use the magnetic tape as the primary method of data recording. We use the paper charts to make sure that we're getting the proper data, just to spot check as we run the test.



Sophisticated sensing

Sensors of several new types are used for measurements on D.O.T. test train. Proximity sensors, mounted on the truck so they are slightly above rail head, overcome problems previously met when measuring rail distortion.



On camera

Roof-mounted TV camera shows pantagraph—catenary action; another makes it possible to watch tracking of wheel.

Q. What about the other test cars?

A. The second car has a package of instrumentation which is intended to measure ride quality. Here we have accelerometers and displacement transducers which will measure the action of the trucks and also the acceleration within the car body. We can measure roll, pitch and yaw and the linear acceleration about three axes. So we can get a very good picture of the acceleration and vibration inside the car body.

The third car has a package of instrumentation for the pantograph and catenary. We can measure all of the movements of the pantograph, and the oscillations in the catenary can be detected indirectly by following the movement of the pantograph. We can measure arcing. In other words, we can get a very good picture of the performance of the pantograph.

The fourth car, at the moment, doesn't have any instrumentation to speak of except air-pressure-measuring devices which will allow us to determine the over-pressure as the test cars pass another train. That way we can investigate the problem of passing trains at high speeds, breaking windows and that sort of thing.

Along with the four cars we have some trackside instrumentation with which we can measure the stresses in, and the movements of, the rails. We have strain gauges and accelerometers that go on the rails and the ties and we can tell exactly what the track structure is doing both from the measurements in the car and the measurements on the trackside. And the trackside equipment also includes some closed circuit TV which allows us to measure the oscillation in the overhead structure. We have closed-circuit TV in the cars also. We can watch the action of the pantographs. Also, we can record this action on video tape and run it back with stop action so we can see exactly what is happening overhead.

Q. What are some of the things you hope to learn from your use of the track-measuring car?

A. There are many things we'd like to learn. I'd like to point out here that we're taking what we consider to be the systems approach with the test cars. For the first time we can measure the track condition and the ride quality at the same time. And we should be able to correlate the track characteristics with the quality of the ride more closely than has ever been done before. We should be able to identify those track characteristics or parameters which have the greatest effect on ride quality; we should be able to isolate the effect of alignment, the effect of gauge, or the effect of cross level and be able to say that we have measured the track and ride quality simultaneously, which nobody has been able to do before.

There are a number of investigations that we'd like to make. One of the first will be to determine the effect of speed on the track parameters. We know, of course, that if a static measurement is made of an unloaded track we will obviously get a different measurement of the displacement of the rails than we would under a loaded condition, and we should get some change as the load is moved over the track at different speeds. So, we would like to take a given section of track and make measurements of speeds, from a few miles per hour up to the maximum speed of the cars, and plot the condition measured against speed and find out exactly what speed does to the position of the rails, how they move around as the speed changes.

Q. In your tests so far with the cars, have you developed any information that will be useful or meaningful so far as the demonstration runs of the PRR between Washington and New York are concerned?

A. Yes. The first thing that we have discovered is that, with the high-quality track on the test section, the ride at high speeds up to 155 mph is excellent. The PRR has agreed as part of the demonstration project to upgrade the track from Washington to New York and they're working hard at this now [RA, Aug. 8/15, 1966, p. 26]. And if the quality of the track is anywhere near that of this test track, and I am sure it will be, the ride will be very good. Now, the test track is on welded rail, of course. So that is a definite advantage, although I think a lot of people will agree that newly installed good bolted track is just as smooth; the problem is, it doesn't stay that way. But to sum this up, the ride at 150 mph is amazingly good. It's better than at 60 mph on a typical stretch of track.

Q. Have you arrived in your own thinking at any maximum permissible speed at which trains could operate with safety over railroad track such as the PRR has in its test section?

A. No we haven't. This is one of the projects which we definitely plan to undertake. We have discussed this with British rail research people and they say that the theory that adhesion will be the limiting factor on speed, due to the fact that adhesion drops with speed, may not be correct. In other words, the British rail studies and our theoretical studies indicate that while adhesion does drop with speed, it does not continue to drop at the same rate as speed increases. It may be asymptotic, that is, it may reach a point where it essentially levels out—doesn't decrease any further.

In any event, it looks to us as though the limit on speeds is really going to be economic rather than technical. In other words, where we have to have track that is maintained in excellent condition and we have to have rolling stock maintained in excellent condition then the cost of maintenance undoubtedly rises with operating speed. It may be that, as we get up to high speeds, the cost of maintenance will be the limiting factor, rather than anything like adhesion. We don't see any reason why you couldn't actually operate at 200 mph as the French did in 1955, and quite a bit higher. A speed of 250 mph doesn't seem to be impossible from what we know now.

Q. In other words what you are saying is that speeds in excess of 200 mph would be practical from the standpoint of safety?

A. I say that because we're convinced that comfort will be a good indicator of safety. If we get a comfortable ride we're getting a safe ride. The ride becomes uncomfortable long before it becomes unsafe.

Q. You mentioned that you were investigating other types of track construction. Is it correct that you are primarily interested in a type of track that is economical to maintain?

A. Yes, that's true. What we're looking

(Continued on page 28)

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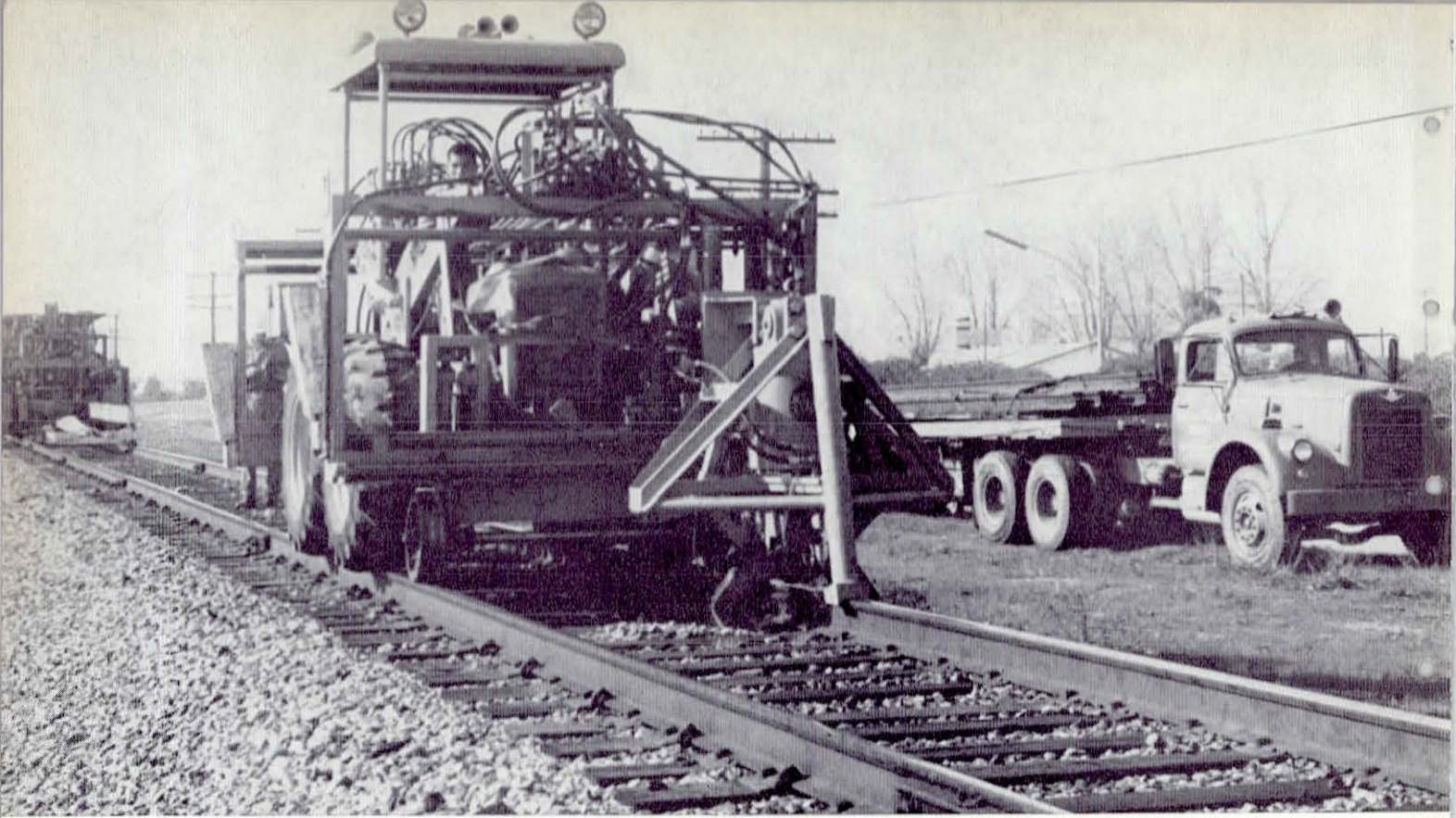
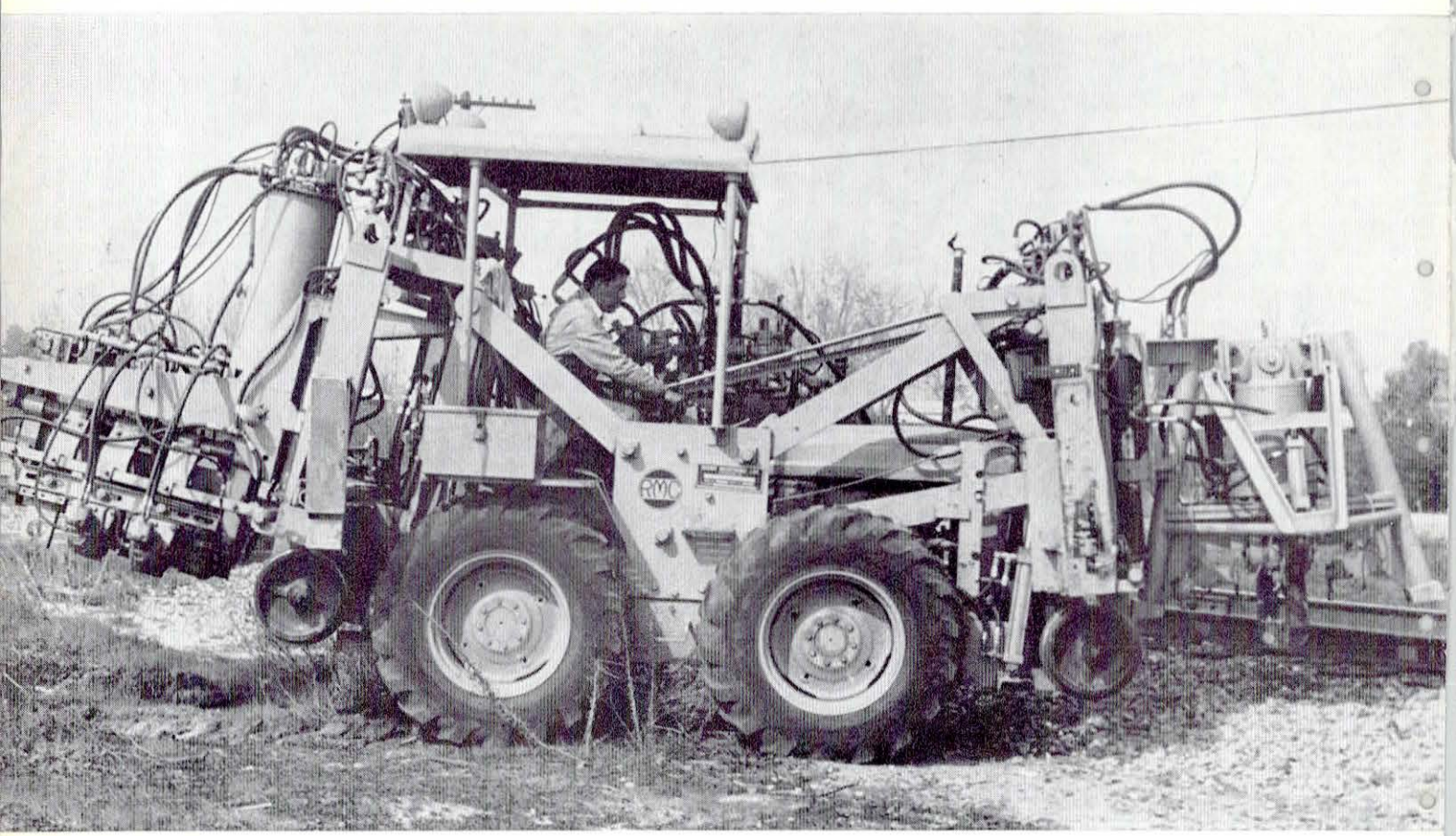


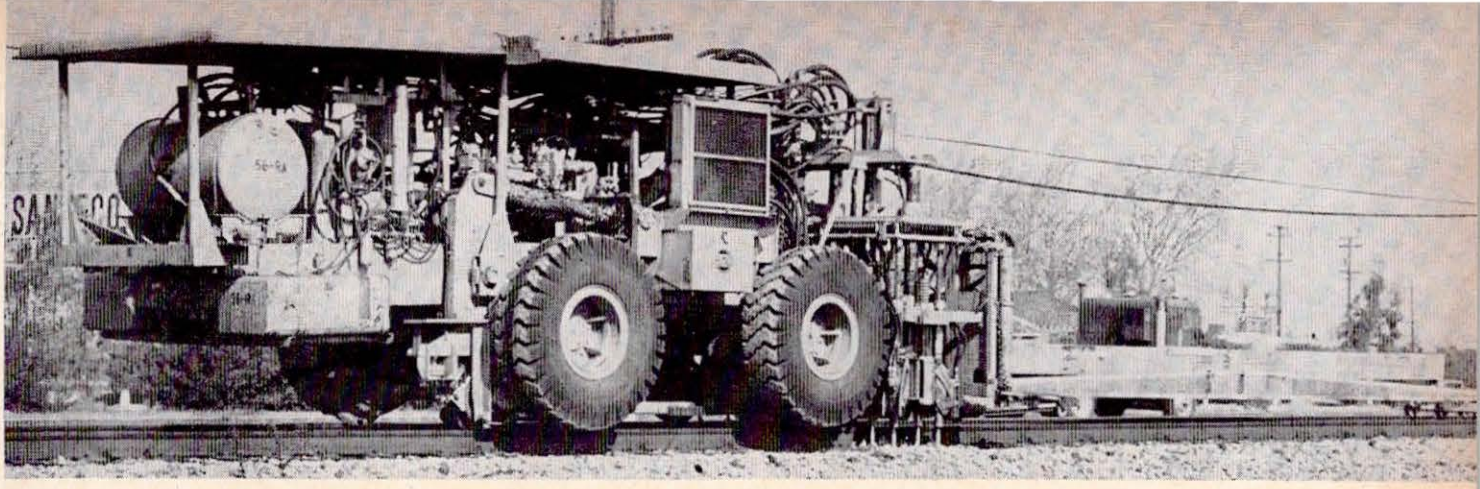
HOW THE MACHINE OPERATES ON THE RAILS

The Joint Straightener/BoltMaster was the leading unit and straightened rail ends at joints. A flatbed trailer, hauling spare rails, accompanied the machine so any defective rails found could be changed out immediately.



AND IT WORKS WELL OFF THE RAILS, TOO

The large rubber-tired wheels, when lowered, enable the unit to be driven off the track for clearing trains. They climb over the rails while repositioning the unit for remounting on the track.



PICKING UP JOINT TIES

After joints have been straightened, the McWilliams production tamper raises and tamps several ties at each joint. While working, machine uses rail wheels for propulsion, rubber-tired wheels are retracted and idle.

On/off track machines can do more

The ability of track machines to get on and off rails can add a lot of production time for track forces. Here's how Southern Pacific teams two on/off track units to do a faster job.

One of the aggravations suffered by track forces is stopping their work to let trains pass. Yet, they know tracks are built for operating trains and must be cleared for their passage. This often entails considerable loss in production time for track forces. Their on-track equipment either must be run to the closest siding or removed from the track on set-offs temporarily provided for this purpose. Also, their work must be stopped early enough to allow ample time for the machines to be in the clear before train arrivals.

To obtain more production time from its track machines, the Southern Pacific has been exploring the possibilities of using on/off-track units. Working with Railway Maintenance Corp., an on/off-track tamper was developed by adding four large rubber-tired wheels to the McWilliams Hydramatic "16" production tamper. The wheels permit the unit to be driven on or off the track in a matter of three to five minutes while clearing for trains. The SP acquired the unit in 1965. More recently the rubber-tired tamper has been equipped with a device for detecting and correcting irregularities in alignment, and which, in addition, can align curves to computed notes.

Recently, another step was taken toward on/off-track units by having RMC equip a combination Joint Straightener/BoltMaster with four large rubber-tired wheels. This unit was acquired by the Southern Pacific in the fall of 1966.

● **Can work as a team.** The road's plan is to work the two machines individually or as a team, depending on the condition of the rail, joints and track surface. Where rail is drooped in the joints but track surface is otherwise good, the Joint Straightener/BoltMaster is usually paired with a spot tamper instead of the production tamper. At such times the on/off-track tamper is assigned to routine out-of-face surfacing. The machines' unique design makes them an unbeatable team for improving surface of secondary main tracks and branch lines, says an SP spokesman.

Commenting on the two machines, W. J. Jones, SP's engineer maintenance of way and structures, said: "These units have the flexibility of getting on and off the track that is not inherent in any other machines. They are as compatible as ham and eggs for work on secondary mains and branch lines where joints get bent and low."

The proving ground for both machines was the road's Tucson division where track forces were already familiar with the basic machines. When observed by a Railway Age reporter, the team had been moved north and was working near Atwater, Calif., on the road's Stockton-Fresno single-track freight main. This line had been scheduled for rail-relay work between Mile Post 142.20 and 156.30. In preparation for this relay it had been retied, surfaced and lined. However, the rail-relay project was postponed and the track had developed low joints.

To keep the track in good surface and line to receive new welded rail when authorized, it was decided to tighten the bolts, straighten the surface-bent joints, "snipe" the joints and refine the line. It was further decided to do this work on an out-of-face basis using the team of RMC machines.

In performing this work one man went ahead and made "eyes" in the ballast at the joints so the jaws of the Joint Straightener could grasp the rails. Another man was kept busy shoveling ballast into any sparse cribs ahead of the tamper. Two other men dressed the track behind the tamper.

A truck driver also accompanied the gang. He was driving a truck-tractor hauling a flatbed trailer loaded with about a dozen spare rails so that any defective rails could be replaced immediately. A Racine power saw and extra bars and bolts were carried in a truck used by the gang for its transportation.

In the Atwater operation, the Joint Straightener was the leading unit. The tamper followed about four rail lengths behind and tamped the joint ends of three or four ties at the joints as

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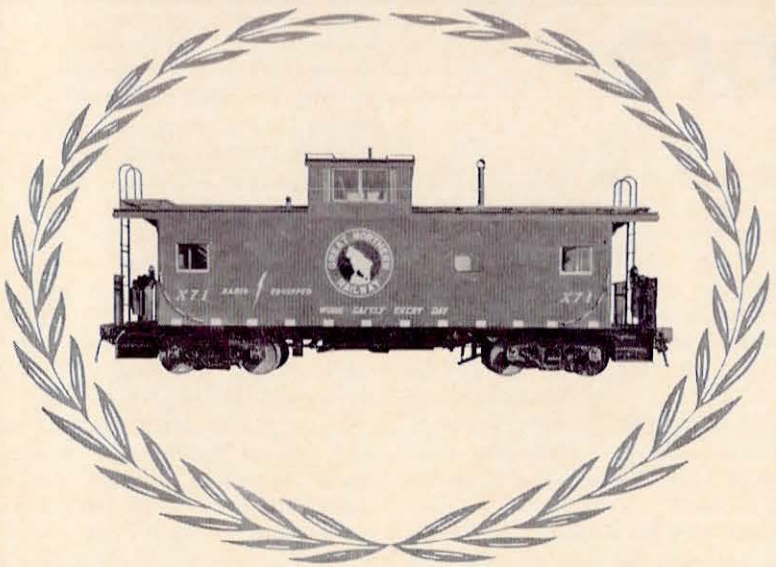

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marked by the foreman.

● **Uses track liner.** The tamper was equipped with both a raising beam and a lining beam. This is the first time the lining device has been used with the on/off-track tamper.

The surfacing device developed for use with RMC tampers consists of an aluminum beam that projects ahead of the tamper with its forward end supported on a four-wheeled cart. The lining device is designed so it can be added in conjunction with the surfacing beam, yet work independently.

The lining device has its own advance cart for supporting the forward end of the lining beam. It also has a long four-wheeled cart suspended beneath the tamper for supporting the rear end of the beam. The carts are free to follow the configurations of the rails on both curves and tangents. The length of the rear cart is used as a subchord for aligning the rails. It and the liner beam represent the total length of the measuring chord: 52 feet.

To make corrections in alignment indicated by the liner mechanism, the tamper is equipped with a track-shifting mechanism. This utilizes the same rail clamps as the raising mechanism and has a hydraulic cylinder that moves the clamps (and the track) laterally in relation to the fixed raising jacks. The lining cylinders act concurrently with the raising jacks so that the track is lined before it is tamped.

● **How it is used.** At the beginning of a day's work, the tamper and carts are placed on the rails of straight track, with the beam sub-chords of the lining device in a straight line. A potentiometer between the two chords at the pivot point is connected to an electrical bridge circuit. When on straight track, an adjustment of the potentiometer to balance the circuits in the bridge produces an electrical output of zero and this is shown on the meter of the computer.

As the machine advances from one work station to another, an alignment error can displace the forward cart and change the angle between the two chords. The potentiometer produces an electrical output in phase and in proportion to the alignment error. This results in an unbalance of the electrical bridge, causing relays to be operated which control the hydraulic lining cylinder beneath the machine. The cylinder is then caused to move the track in the direction and the amount required to correct the misalignment. This system is basically the same as that used by RMC in its surfacing machines.

When working on tangent track, the lining device is set for automatic lining at the zero reading. When working on

curves, the tamper is advanced from one work station to another and readings of the track deviations on the meter are recorded. Using these, a graph of the existing curve is plotted and a proposed uniform curve is drawn on the graph. The machine is then backed up to the beginning of the curve and the scaled readings of the desired curve are programmed into the meter. The machine then lines the track to these readings and at the same time raises and tamps.

In addition to the way SP uses the lining device, the manufacturer says, other methods of use are possible. For example, the lining device may be either manually or automatically programmed for control of the lining functions from data acquired from other sources, such as engineer's transit notes, notes from the standard string-lining method and inspection-car data. It also can be modified so as to produce permanent records of the alignment both before and after correction work is performed. In addition, modifications are available to permit it to be fully automatic so as to record, compute, program and line without any manual operations being necessary.

● **Trains are frequent.** The track being worked at Atwater was a good place to point up the value of this team of on/off-track machines. Trains, passing at frequent intervals during the work day, necessitated moving the units off the track. A radio on the tamping machine permitted the foreman to maintain constant communication with approaching trains, thereby gaining maximum on-track time. The terrain was uniformly level, so the machines could be driven off the rails almost anywhere.

In general, the Joint Straightener/BoltMaster is always driven on and off the rails when clearing for trains. However, if a siding is not too far from the work site, the McWilliams tamper is run to the siding to save the time that would be required to remove and replace the beams and carts. It can be removed or put back on the rails in as little as three minutes, and, of course, is always at the work location when driven off the track.

When moving from one work location to another that is within running distance, the machines are driven along the right of way where possible, on access roads or on the shoulders of highways. The weight of the on/off-track tamper (16 tons on the front axle and 9 tons on the rear) precludes it from using highway pavement. For hauls of from 20 to 40 miles, the machines are moved on a low-boy trailer. For longer hauls, they are loaded on flatcars. ■

LUTHER MILLER

AS THE EDITOR SEES IT...

ONE WHO GOT AWAY—David Perry is not his real name; but everything else I will write about this young man is true. As a boy in California he became a train buff. As a youngster at prep school he decided that railroading was the life for him. He spent the summer vacation between his freshman and sophomore years at Princeton travelling around the country, visiting railroads and talking with railroad men. He thought a lot about what he saw and heard, and about what he read in Railway Age.

A few days ago he dropped by to see me. It was career-decision time and my young friend was having some serious second thoughts.

What he read about railroads, he said, was one thing; what he saw and heard was another. He wondered if railroad men, in their broad oratorical swipes at the future, were not talking a better game than they were prepared to play. He also wondered if Railway Age was really serving up the bitter with the sweet.

"Sure," he told me, "railroads are going to be around for another 20 or 30 years—but I'm going to be around a lot longer than that, and I don't want to go into an industry that looks like it might retire before I do."

He said it was hard to put his finger on what was troubling him; he simply had the feeling that men who had let the passenger business slip through their fingers—at a time when the travel market was the biggest in history—could not be relied upon to fight any harder for freight when the competition really got tough. He mentioned the supersonic jet freighters on the drawing boards—and commented wryly that it looked as if we'd see these birds a lot sooner than we would ever see super-railroads.

FINDING TOMORROW'S MANAGERS—What do you say in this kind of situation? You talk about the bullish projection nearly everyone is making for railroads; about the great successes of recent years in recapturing freight; about the bright new managers who have quietly (maybe too quietly) been turning this industry upside down. You wish this young man could tour the New York Central's Technical Center at Cleveland with Al Perlman as his personal guide; or spend an hour listening to Lou Menk or John Barriger talk about what brought them into this industry and what has kept their enthusiasm high.

Somewhere among today's college men are tomorrow's Perlmans and Menks and Barrigers. Are the railroads going to get them—or are the railroads going to have to settle for the second raters?

I began to worry. Then I did a little research and felt better.

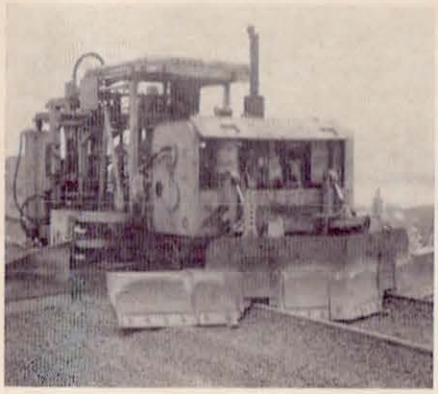
ANOTHER MAN, ANOTHER TIME—Fifty years ago this week another bright young rail-fan made a career decision; he went to work in the Pennsylvania's Altoona shops. How did the future look to this youngster? I went back to the June 1917 issues of what was then called the Railway Age Gazette.

Railroads were under threat of government seizure; there was a record car shortage; the Rock Island was struggling out of receivership; southern carriers complained of "a stagnation in gross and a decline in net," and western carriers fretted over the wage-price squeeze. Highway competition was just down the pike. Government ownership of a declining industry was on everybody's mind.

But John Barriger may have been too busy learning the ropes at Altoona to read these things—or the lead editorial in our June 1, 1917, issue which was headed, "Why college men leave railroads."

John was still busy last week—running the Katy, participating in his fourth inaugural of an AAR president, and talking confidently of the super-railroads that he has worked so hard to create. Some day we'd like to bring John Barriger and David Perry together.

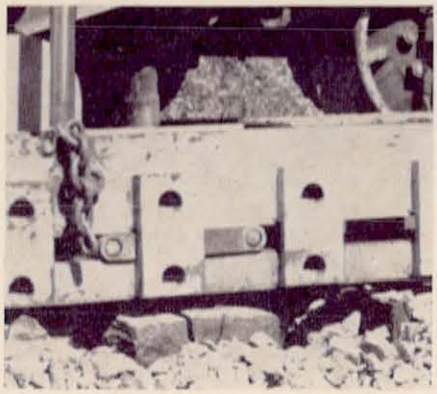
NEW **PRODUCTS** REPORT



Ballast Plow (RA-1)

A special ballast-plow-and-dressing-wing attachment has been developed for adaptation to any type of RMC tamper. The plow is installed at the rear of the tamper and the wings on the sides. Each unit is powered hydraulically and independently controlled.

The plow and dressing-wing attachments are particularly recommended by the manufacturer for terminal, short line and industrial railroads. *Railway Maintenance Corp.*

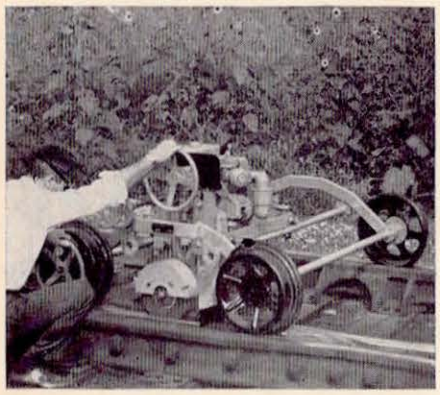


Spiker-Spacer (RA-2)

A new machine designated the RMC Spiker-Spacer combines a tie spacer and a tie-nipping—spike-driving machine. It is designed to space ties and drive down high spikes ahead of a tamper in a surfacing gang and is said to increase tamper production from 10% to 20%. It also can be used behind a jacking tamper in a multiple-tamper operation and for spiking new ties and spacing adjacent ties in tie-renewal work. *Railway Maintenance Corp.*

Dozer Brush Cutter (RA-3)

The RMC brush cutter is available mounted on a crawler bulldozer, one operator being used for both dozing and brush-cutting operations. It uses a single 7-foot-diameter cutter to remove brush on either side, with a boom extending to a maximum of 14 feet from the center line of the machine. Mounting is such that the cutting head can be moved through 180 degrees. The machine shreds brush and will handle larger trees. *Railway Maintenance Corp.*



Joint Grinder (RA-4)

Portability is claimed as the outstanding feature of a newly developed frog and rail-joint grinder. Designated Model P-6-L, its lightweight, tubular-steel construction is said to make it one of the most time-saving and easy-to-handle frog grinders available today.

It disassembles quickly into a 140-lb frame and track-wheel assembly, and a 245-lb engine and grinder assembly. Carrying handles are conveniently stored.

The tubular frame is mounted on aluminum track wheels and hubs. The grinding assembly consists of the grinder and its drive engine. This group traverses on bronze-bushed conical rollers; the lower rollers snap out of the way for disassembly. Handwheels for making oscillating, traversing and elevating adjustments are also of lightweight cast aluminum. The engine can be either a 5.8-hp or a 7.5-hp unit, both operating at 2,600 rpm. They are equipped with two groove pulleys, centrifugal clutch and power take-off.

The unit uses a standard 10-inch resinoid grinding wheel but can handle a 12-inch wheel. *Railway Trackwork Co.*

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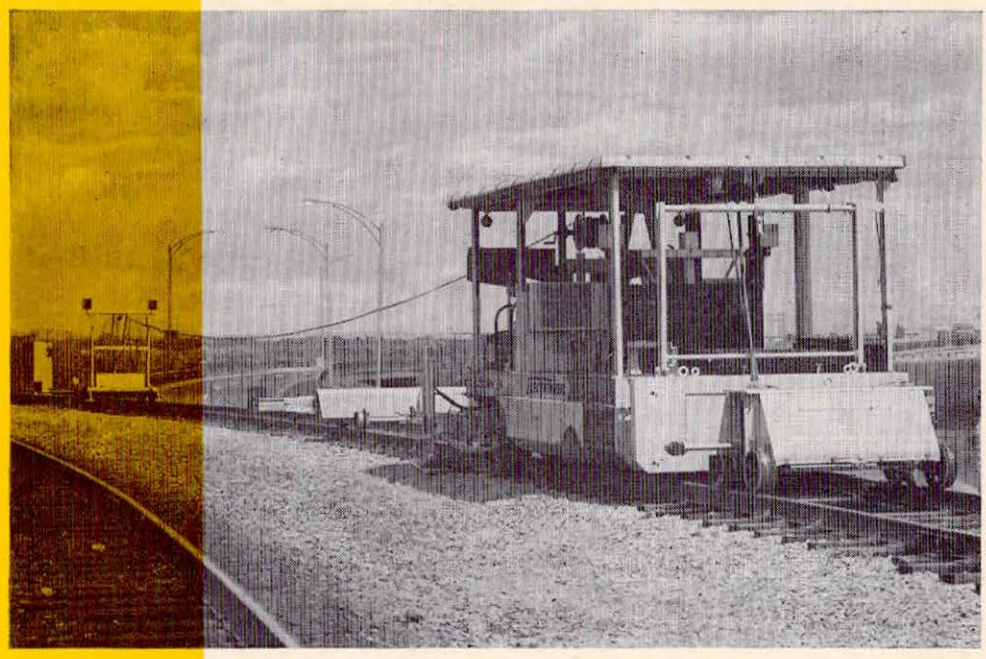
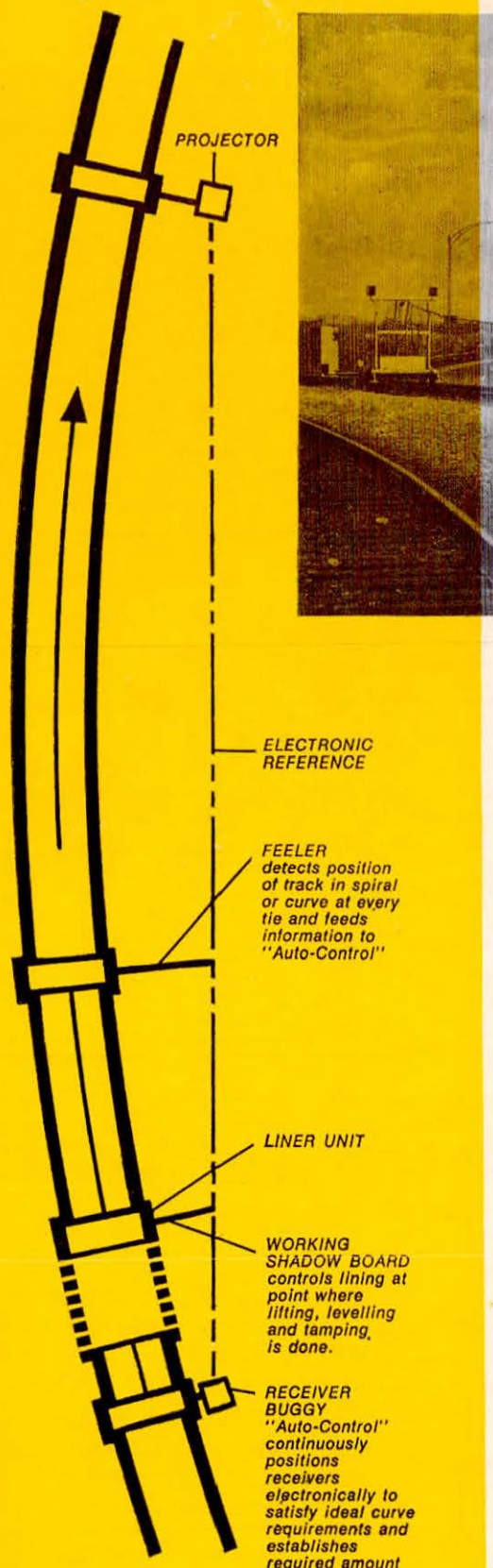
LEVELLING, LINING, TAMPING... in ONE OPERATION, with ONE OPERATOR




PROJECTOR
ELECTRONIC REFERENCE
FEELER detects position of track in spiral or curve at every tie and feeds information to "Auto-Control"
LINER UNIT
WORKING SHADOW BOARD controls lining at point where lifting, levelling and tamping, is done.
RECEIVER BUGGY "Auto-Control" continuously positions receivers electronically to satisfy ideal curve requirements and establishes required amount of track correction.

The Autojack Electromatic with Autoliner leads the way through these advantages:

- Gives the highest possible degree of accuracy by electronic beams projected 100 feet in advance of where levelling, lining and tamping are taking place.
- Automatic, continuous operation for both tangent and curve track.*
- No plotting of spirals or curves required. Machine computes as it runs for the best transition.
- No disturbing or humping of track — lining takes place simultaneously with lifting and tamping ahead of tamping tools.
- With the Autoliner, it is possible to make a minute throw and have it stay there because tamping is done in correct alignment.

*Model ALT for Tangent track and Model ALC for Tangent and Curve Track, both available as attachments for existing AUTOJACK ELECTROMATICS.

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WATCHING **WASHINGTON** WITH WALTER TAFT

TAFT

ROLE OF SAFETY BOARD—The autonomous National Transportation Safety Board, which is housed in the Department of Transportation, will use sparingly its plenary power to investigate transportation accidents. Contrary to speculation suggesting that most of its work might be related to air-transport accidents, however, the Board's own expectation is that air transport will take second place to surface transportation. The main reason for this is highway transport's big lead as killer and maimer. But accidents in connection with railroad transportation will also get close scrutiny from the Board, principally because of the non-passenger casualties, i.e., those involving railroad employees, trespassers, and highway travelers in grade-crossing accidents. Travel by rail, of course, is still safest for passengers.

Board thinking along the foregoing lines was outlined by Chairman Joseph J. O'Connell, Jr., in an interview with Railway Age. O'Connell is a former chairman of the Civil Aeronautics Board. Like his four associates on the Safety Board, he holds a job which requires appointment by the President and confirmation by the Senate. The other members are Oscar M. Laurel, a former U.S. attorney of Laredo, Tex., Francis H. McAdams who came from CAB's staff, John H. Reed, former governor of Maine, and Rear Admiral Louis M. Thayer, former commandant of the Coast Guard District at Miami, Fla.

FIRST PROBE OF RAIL ACCIDENT—Chairman O'Connell's discussion of the Board's approach to its job was an elaboration of what it said in announcing its first investigation of a railroad accident. The accident chosen is the head-end collision between two New York Central freight trains which occurred May 22 in New York. Six members of the trains' crews were killed. Board Member Reed will be in charge of the investigation. He will be assisted by Examiner Robert R. Boyd. Boyd went from the ICC's staff to D.O.T.'s Federal Railroad Administration when the Commission's transport safety functions were transferred to the new Department.

CATASTROPHES ONLY—For the present, the Board will preempt for itself investigations of "catastrophic accidents only." That's the way its announcement of the NYC probe put it. Chairman O'Connell's elaboration emphasized the Board's plan to concentrate on "productive cases where lessons can be learned." The chairman also emphasizes that the number of cases taken over from the D.O.T. modal administrations must be relatively few if the Board is to operate on a practical basis with its limited staff, and keep the over-all view.

Its general practice will be to delegate all of its investigatory powers to the Railroad, Highway and Aviation administrations, and to the Coast Guard which is a like unit within the new Department. Such delegations, however, will reserve for the Board the right to step in and take over any investigation at any stage of its progress. "We can do from anything to nothing," is the way Chairman O'Connell puts it.

PUBLICITY THE "TEETH"—The D.O.T. Act gives the Board no power to enforce its recommendations. But it does require that all Board reports, orders, decisions, and regulations shall be made public. Publicity is also required for every recommendation made to the Secretary of Transportation or a D.O.T. modal administrator, for every special study conducted by the Board, and for every action of the Board requesting the Secretary or an administrator to take action. Recommendations may also be made directly to the transportation industry.

While the Secretary or an administrator (or the transport industry) can refuse to follow a Board recommendation, Chairman O'Connell doesn't expect much trouble of that kind. He thinks the publicity requirements will prove an effective substitute for a statutory set of teeth—"provided our recommendations are good ones."

High-speed track research

(Continued from page 19)

for is a track that would permit economical operation at high speeds. But I would like to point out that track which was stable would also be safer. You know there have been a number of derailments in the last few years that have been blamed on poor maintenance or lack of maintenance and so, obviously, if we get a track that doesn't require as frequent maintenance, we'll get a safer track in one package. I think there will be a study made before long by the Department of Transportation that will attempt to correlate lack of maintenance with derailments, so it will be all tied together.

Q. Am I correct in my understanding that, through the use of the track-measuring cars in the test program, you hope to develop information that will be useful in planning track-maintenance programs?

A. Yes, of course programming track maintenance is not a new idea. A number of railroads have tried it. The problem has been to have information available quickly and cheaply enough to permit the planning of maintenance. The track-measuring cars, for example, that travel at 10 mph obviously don't permit you to cover much track in any given week or month. The New Tokaido Line in Japan, for example, has track-measuring cars that run at 100 mph and they cover every foot of the New Tokaido Line, all 320 miles of double track, once a week and they really program out their maintenance. They do emergency maintenance with hand equipment on the really bad spots and then they program out the normal maintenance.

We propose to show how we can do this and do it in an even better fashion, to go one step beyond what the Japanese have done. They have to do a manual analysis of analog pen recordings on paper charts. We're recording on magnetic tape. We can run this through a computer and we can come out with digital-form reports to tell the track-maintenance people whatever they would like to know. We could, for example, tell them all the locations where the track is out of standard, and the nature of the deviations from the specified tolerances, or we could tell them the number of times per mile the track is out of tolerance. The computer can be programmed to tell the maintenance-of-way people whatever they'd like to know out of the recorded data. You

cover lots of track with a high-speed car and you can get quick reports to make sure you spend your maintenance money where it does the most good.

Q. How far along have you gone in actually developing such a system?

A. We have the track-measuring equipment. We have the computer programs. We have the data-reduction process, and we have samples now of the different print-outs which can be provided.

Q. So in other words, any railroad can pick up this system almost from where you have it now and put it into actual use?

A. That's right. All they have to do is spend the money.

Q. Speaking of money, how much money do you have to work with in this program. How much has been spent and how much is left?

A. The High Speed Ground Transportation Act provided authorization of $90 million. However, not all that money has been appropriated. The first year for which money was appropriated was fiscal 1966, and a little over $18 million was appropriated to further the work under all three sections of the Act. The R&D portion of that was about $8½ million. The next year, in fiscal 1967, the R&D was about $8 million. In other words, we have obtained a total for two years of between $16 and $17 million for R&D alone. For fiscal 1968, the same amount of money ($8 million) has been requested.

In these three years there will not be appropriated the full $90 million, so I'm sure the Department of Transportation will request legislation extending the life of the program. Of course, I hope this will become a continuing program of research and development and I think it will. There's every reason to believe that it will eventually be a continuing program.

Q. What are you doing about rolling stock?

A. We have a fairly good program going in this area. For example, we have offered, on a cost-sharing basis with industry, to evaluate all new equipment which we can install on our test cars. That is, if industry will provide the new equipment, whether it's a new wheel, a new braking system, new traction motor, new controls, even a new kind of propulsion, we will test it.

We don't have to stick to electric propulsion, either.. We can convert these cars to something else if we want to. But, industry, I repeat, must provide the equipment.

Q. You mean the railroad supply industry?

A. Yes. Then we will install the equipment, test it, write a report and distribute it to the public. We're starting on several of these projects just as soon as we can. There have been several companies that have already agreed to provide us with items of equipment to be evaluated. One of the points I'd like to make is that we are going to provide reports on all the work we do. As each part is finished the report will be written and will be made available through the Clearing House for Federal Scientific and Technical Information. Anyone will be able to buy these reports, whether they deal with track, with computer programs, with the evaluation of new pantographs for cars, or other matters.

Q. Have you done any great amount of research on the unconventional modes of transportation?

A. Not a great deal. We have MIT working on several different research tasks connected with their cushion vehicles and tube vehicles. We have Rensselaer Polytechnic working on Dr. Foa's idea for a tube vehicle. We are looking at communications problems. We've got the tele-communications laboratory of the Environmental Science Services Administration in Boulder, Colo., working on this. Now we're looking at linear induction electric motors. We have AiResearch Division of Garrett Corp. working on that. We're continually looking at new ideas.

Q. Do you visualize that later on there may be a shift of emphasis in the studies toward the unconventional?

A. Yes. We have always planned to put a larger share of our research and development funds in the unconventional areas. This hasn't happened up to now because, in order to start our rail R&D program, we put a rather large portion of our funds into the test cars and instrumentation.

Q. Do you feel that some unconventional form of transportation will be necessary in the future to handle the transportation load?

A. We don't know as yet. We are looking at the unconventional so that the results can go into the Northeast Corridor study, and we can see whether the unconventional will satisfy the transportation requirements better than the conventional. You know it's entirely possible that, by improving the existing modes of transportation, we might be able to satisfy the transportation needs of the future. And it's also entirely possible that the present modes need to be supplemented by some new mode, and so we are looking at all possibilities. It is going to take a couple more years for us to find the answer. ■

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PEOPLE IN THE NEWS

ASSOCIATION OF AMERICAN RAILROADS—**Lester C. Roig, Jr.**, treasurer, **Chesapeake & Ohio-Baltimore & Ohio**, elected chairman, Eastern Group, Treasury Division, AAR. Mr. Roig formerly served as vice chairman and also has been secretary of the organization. **John R. Dunn**, assistant treasurer, **New York Central**, elected vice chairman, Eastern Group, Treasury Division, AAR. **Robert A. Batterson**, secretary and treasurer, **Long Island**, assumes the duties of secretary, Treasury Division.

CANADIAN NATIONAL.—**A. H. Hart**, vice president—freight sales, Montreal, appointed to the new post of vice president—marketing. He will have jurisdiction over marketing of carload freight, passenger and express freight services. **George R. Johnston**, assistant vice president—freight sales, will assume direct functional responsibility for carload freight sales.

CANADIAN PACIFIC.—**J. R. C. Macredie** appointed division engineer, Smith Falls Division, at Smiths Falls, Ont., succeeding **R. R. Morrish**, transferred.

L. G. Laramee, acting assistant superintendent, Montreal, appointed assistant superintendent, Montreal Terminals Division.

CHESAPEAKE & OHIO—BALTIMORE & OHIO.—**William F. Lauer**, assistant regional rate manager, Cincinnati, promoted to regional rate manager there, succeeding **Theodore J. Younker**, retired.

C. W. Bledsoe appointed assistant superintendent station operations, Baltimore, succeeding **E. K. Reed**, retired.

C. E. Marshall, Jr., assistant terminal trainmaster, Grafton, W. Va., promoted to terminal trainmaster there.

CHICAGO & EASTERN ILLINOIS.—**Robert E. Rathert** named manager of materials.

CHICAGO & NORTH WESTERN.—**Carl R. Hussey**, assistant vice president-operations, named special assistant to the chairman-transportation.

Miles O. Kier, sales agent, Cedar Rapids, Iowa, named assistant general agent, Clinton, Iowa.

Keith E. Peterson appointed assistant to director industrial development, Chicago. **John Wauterlek** named manager industrial development, and **John J. Foxen**, assistant manager industrial development, both with headquarters at Chicago. **William E. Wimmer** becomes industrial development engineer, Chicago.

L. H. Haberbeck appointed director-systems design and installation.

COTTON BELT.—**Harold W. Mason**, assistant freight traffic manager, St. Louis, Mo., promoted to freight traffic manager—rates and divisions, succeeding **William A. Feldman**, retired. **Redmond J. Kinsella**, assistant general freight agent, Tyler, Tex., succeeds Mr. Mason there. **Lester B. Detwiler** appointed assistant general freight agent, Tyler, succeeding **James A. Bailey**, promoted to general freight agent there.

DENVER & RIO GRANDE WESTERN.—**E. B. Herdman**, director of personnel, retired May 31.

ELGIN, JOLIET & EASTERN—**Stuart H. Shepley**, chief engineer, retired June 2 after more than 37 years' service.

ERIE LACKAWANNA.—**Jack H. Kithcart**, trainmaster, Hoboken, N.J., appointed assistant superintendent, Marion, Ohio, succeeding **Harold A. Dean**, named trainmaster, Elmira, N.Y. **R. J. Noonen**, road foreman of engines, Meadville, Pa., appointed trainmaster, Hornell, N.Y.

GRAND TRUNK WESTERN.—**Thomas W. Smith** named superintendent, Chicago division, Battle Creek, Mich., to succeed **Edward T. Rose**, appointed general superintendent of transportation, Detroit (RA, May 22, p. 31). Mr. Smith was superintendent of the **Duluth, Winnipeg & Pacific**, Virginia, Minn.

ILLINOIS CENTRAL.—**Clifford G. Massoth**, director of public relations, appointed director of public relations and advertising.

Dr. Harry L. Hunter named chief medical officer, Illinois Central Hospital. He was formerly consultant in chemotherapy at the hospital.

Charles E. Altmeyer elected president, **Chandeysson Electric Co.**, a subsidiary of **Illinois Central Industries**. Mr. Altmeyer, formerly executive vice president of Chandeysson, succeeds **Robert B. Lamkin**, resigned.

MISSOURI-KANSAS-TEXAS.—**Harold O. Brandt**, area development manager, Houston, appointed director of industrial development, Dallas, to succeed **William W. Renfro**, retired. **H. Milton Bullock**, industrial representative, Dallas, succeeds Mr. Brandt. **Fred L. Cring**, area development manager, advanced to assistant director industrial development, with headquarters remaining at Dallas.

MISSOURI PACIFIC-TEXAS & PACIFIC.—**Dr. Ernest T. Rouse** appointed chief medical officer, St. Louis.

NORTHERN PACIFIC.—**L. S. Kiser**, assistant to the vice president of traffic, advanced to freight traffic manager, Central-Eastern region, St. Paul, to succeed **J. D. Nankivell**, named general manager-sales (RA, March 13, p. 38).

RAILWAY PROGRESS INSTITUTE.—**Joseph R. Ewing** appointed to the new post of director of public affairs, Washington, D.C. He will resume responsibility for RPI educational programs and publications. Mr. Ewing formerly was director, Transportation Action Program, Chamber of Commerce of the United States.

REA EXPRESS.—**James N. Miller**, assistant director, personnel administration, promoted to director, personnel administration, New York. **Jack H. Horner**, manager of employee benefits, named director, employee benefits.

ROCK ISLAND.—**Frank B. Findling** named assistant to chief mechanical officer, Kansas City, Kans. He was formerly superintendent of car department planning, **C&O/B&O.**

SOUTHERN.—**Lawson G. Tolleson**, assistant vice president—labor relations, appointed vice president—personnel, Washington, D.C.

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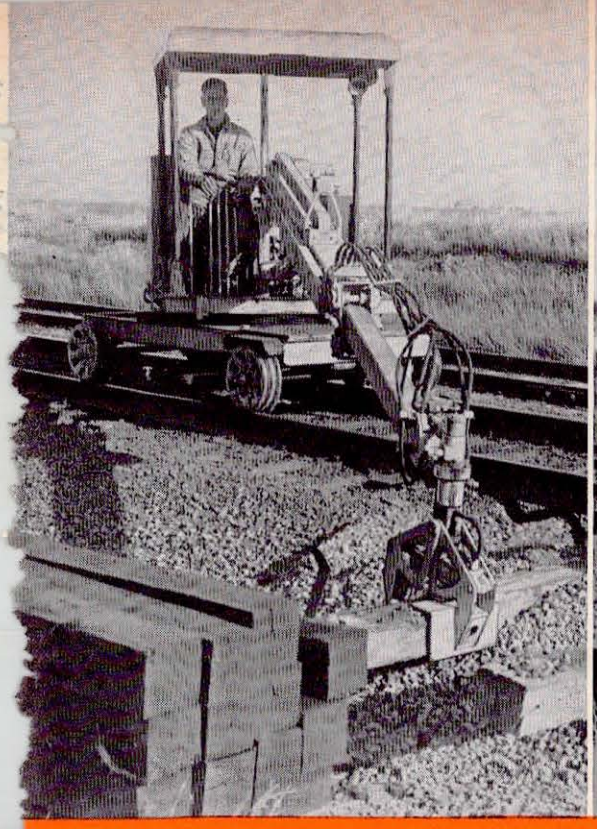

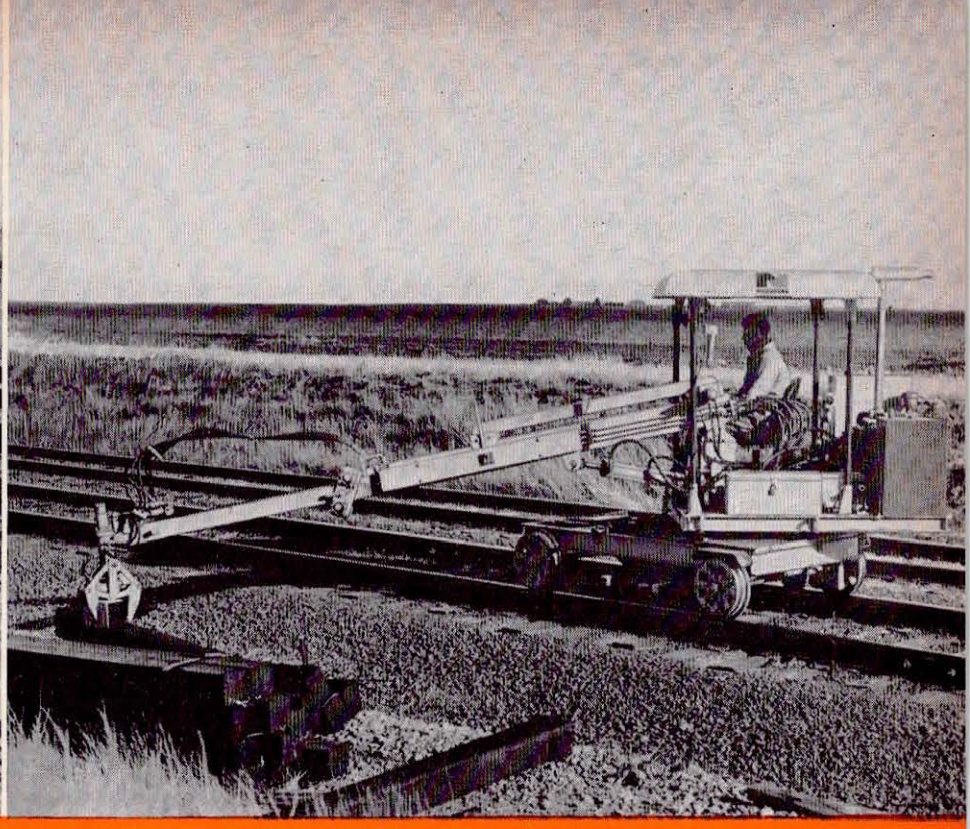

Money-saving Nordberg® TIE HANDLER speeds up tie renewal operations

Long-reach telescoping boom is key to rapid tie handling

SPECIFICATIONS

Overall length, (boom extended) 24 ft.
Overall width, 65¼ in.
Overall height, 90¾ in.
Diesel engine rating, 43 hp (35 hp cont.)
Load capacity, 900 lbs. @ 18 ft., 1300 lbs. @ 13 ft.
Deck and lifting jaws rotate 360 degrees

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The new Nordberg Tie Handler will facilitate the placement of new ties as well as the discarding of old ties. Its telescoping boom that can increase reach up to 5 feet in just 3.2 seconds is the key to the impressive operating speed of this efficient *all-hydraulic* machine. (The boom telescopes from 13 feet minimum to 18 feet maximum.)

Both the travel and working speeds of the Nordberg Tie Handler allow the new machine to adapt itself to the production rates of other proven Nordberg Tie Gang Equipment. Boasting a travel speed of 19 mph maximum, the Tie Handler perfectly complements such units as the Nordberg Tie-Axe and Scarifier-Inserter.

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Ajax Consolidated

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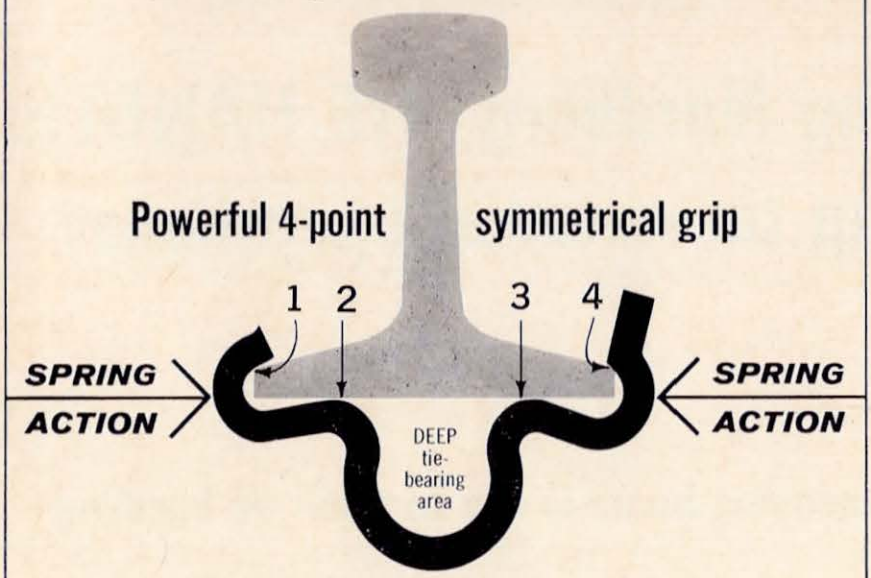
MORE RESERVE POWER
than you ever need!



The powerful spring compression grip of the Woodings Rail Anchor is backed up by wide and deep tie-bearing area. Together they give the Woodings Anchor its extra reserve power, enable it to hold fast under the most severe conditions.
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RAIL ANCHOR
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SUPPLY TRADE

F. R. Brookmeyer, general sales manager, **Ajax Consolidated Co.,** has been appointed to the newly created position of vice president, sales.

F. J. Cullen has been appointed president, **Cullen-Friestedt Co.** His father, **Frank P. Cullen,** former president, died in December 1966.

Railway Age Publisher Robert G. Lewis has announced the following editorial changes: **Fred C. Miles,** managing editor, New York, is promoted to executive editor, the title formerly held by Luther S. Miller, who is now editor; **Edward F. Donlon,** news editor, New York, is promoted to managing editor. **Frank Malone** appointed western news editor, Chicago, reporting to Senior Editor Gus Welty. John Mitros, formerly western editor, has joined the Illinois Central public relations department as manager of editorial services (RA, June 5, p. 31).

Mr. Malone comes to Railway Age from the American Bar Association, Chicago, where he has been an editorial associate. A graduate of Marquette University, he formerly worked as a reporter for the Milwaukee Journal and as a staff writer for the public relations department of the New York Central.

John M. Brennan has joined the advertising sales staff of **Railway Age** as advertising sales representative at Chicago. He will call on railroad supplier accounts in Illinois and Minnesota. Mr. Brennan has had advertising sales experience with various business publications.

Leslie B. Worthington, president, **United States Steel,** Pittsburgh, will retire June 30, after 44 years' service. **Edwin H. Gott,** executive vice president—production, has been elected president and chief administrative officer. Mr. Gott was also elected chairman, executive committee.

OBITUARY

Herbert W. Hamilton, retired vice president and general manager, **Manufacturers Junction,** died recently at Winterhaven, Fla.

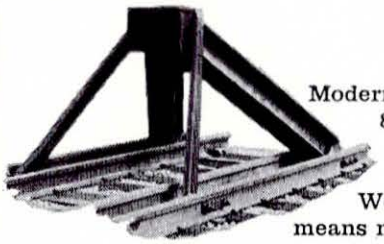
William Wade Matchneer, former vice president, **Buckeye Steel Castings Co.,** Columbus, Ohio, died June 1.

Frank F. Vesper, 52, executive assistant to the president, **Chicago & Eastern Illinois,** died May 25 in Ingalls Memorial Hospital, Harvey, Ill.

Eugene F. Walter, 48, sales manager, **Alco Products, Inc.,** Chicago, died May 30 in Lutheran General Hospital, Park Ridge, Ill.

Hayes

ALL-STEEL Bumping Posts



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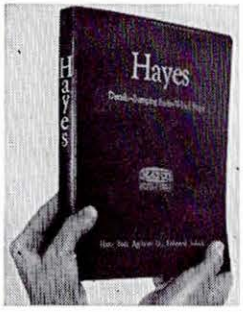

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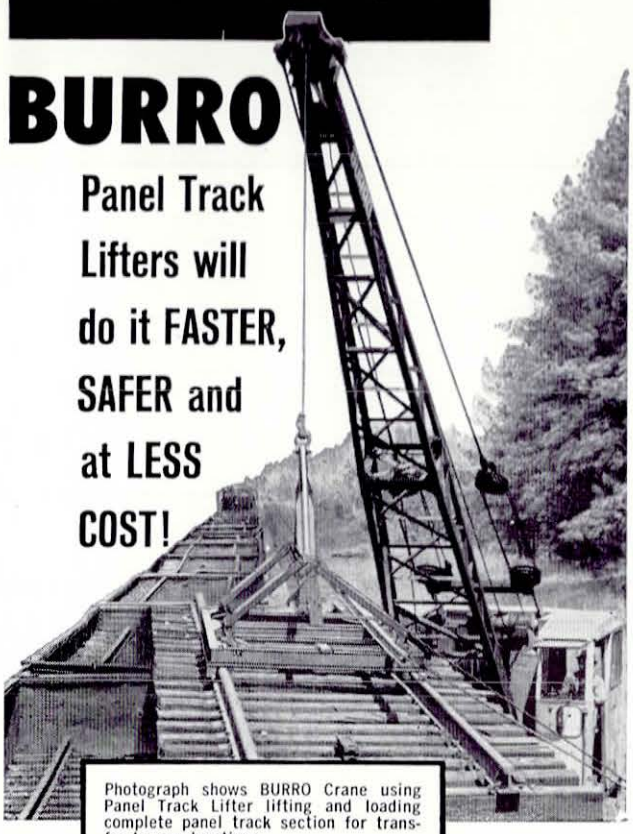
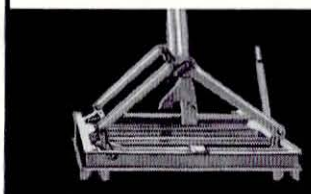


Photograph shows BURRO Crane using Panel Track Lifter lifting and loading complete panel track section for transfer to new location.



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MARKET OUTLOOK

Carloadings

Loadings of revenue freight in the holiday week ended June 3 totaled 508,836 cars, the Association of American Railroads announced on June 8. This was a decrease of 64,816 cars, or 11.3%, compared with the previous week; a decrease of 38,849 cars, or 7.1%, compared with the corresponding week last year; and a decrease of 21,648 cars, or 4.1%, compared with the equivalent 1965 week. Ton-miles generated by carloadings in the week ended June 3 are estimated at 13.0 billion, a decrease of 3.9% below the corresponding week of 1966, and 4.8% above the 1965 week.

REVENUE FREIGHT CARLOADINGS
For the week ended Saturday, June 3

District	1967	1966	1965
Eastern, including Allegheny and Pocahontas	200,238	219,765	213,518
Southern	109,541	109,676	108,068
Total Eastern and Southern Districts	309,779	329,441	321,586
Northwestern	71,294	80,805	75,053
Central Western	93,220	101,785	97,126
Southwestern	34,543	35,654	36,719
Total Western Districts	199,057	218,244	208,898
Total All Roads	508,836	547,685	530,484
Commodities:			
Grain and Grain products	35,321	43,508	40,611
Livestock	1,190	1,613	1,413
Coal	97,574	104,572	97,971
Coke	6,936	8,359	8,213
Forest Products	36,047	36,888	35,949
Ore	51,709	59,228	51,557
Merchandise l.c.l.	4,673	5,355	8,415
Miscellaneous	275,386	288,162	286,355
June 3	508,836	547,685	530,484
May 27	573,652	611,744	600,776
May 20	571,344	609,325	598,678
May 13	575,596	611,161	593,858
May 6	561,724	602,244	591,181
Cumulative total, 22 weeks	11,775,347	12,201,012	12,045,934
Estimated revenue ton-miles (billions) 22 weeks	303.8	307.9	284.6

PIGGYBACK CARLOADINGS. — U. S. piggyback loadings for the week ended May 27 totaled 23,435 cars, carrying 39,018 trailers, compared with 23,303 cars, carrying 38,675 trailers, in the corresponding 1966 week. Loadings for 1967 up to May 27 totaled 471,503 cars, carrying 775,831 trailers compared with 450,200 cars, carrying 743,803 trailers, in the corresponding period of 1966.

IN CANADA — Carloadings for the seven-day period ended May 21 totaled 81,720 cars, compared with 79,108 for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
May 21, 1967	81,720	27,173
May 21, 1966	87,009	25,707
Cumulative Totals		
May 21, 1967	1,424,693	507,620
May 21, 1966	1,535,791	520,730

NEW FACILITIES

► *Canadian Pacific.*—Is planning to undertake a major reballasting program this summer between Calgary and Red Deer. The project involves 74 miles of line and will cost an estimated $650,000.

► *Northern Pacific.*—Major projects under way include installation of microwave between Fargo, N.D., and Laurel, Mont., at a cost of $2.3 million; installation of CTC between Tacoma and Vancouver, $1,870,000 over the next two years; continuation of work on a small automatic classification yard at Missoula, Mont., $396,000 to be spent this year; and construction of an additional siding and extension of an industry switching lead at Kent, Wash., $390,000.

► *PATH.*—Has drawn up plans for a coordinated transportation center for the central business district of Jersey City, N.J., combining a new Port Authority Trans-Hudson (PATH) rapid transit station, a bus station and automobile parking in one building. It would cost an estimated $34.3 million.

► *Reading.*—Opened a piggyback ramp facility at Allentown, Pa., last week to provide TOFC service for the Allentown-Bethlehem area. The ramp, serving the expanding Lehigh Valley, is the eighth TOFC ramp facility to be opened on the system by Reading.

► *Seaboard Air Line.*—Ordered 110 sets of train control equipment from General Railway Signal Co. for installation on locomotives.

FOREIGN

► *Chilean State Railways.*—Purchased eight new General Electric U13C diesel-electric locomotives as part of that railroad's continuing program of fleet modernization. The 1,320-hp units are the most powerful locomotives the Chilean Railways have purchased from GE in the past decade. Five of the locomotives will be used on the line from Arica in northern Chile to Bolivia, where grades are severe and altitudes range to 12,000 feet. The other three locomotives will be used in the Coquimbo area.

► *Pakistan.*—Will use proceeds of a new $13.5-million World Bank loan to purchase foreign materials and components for the local manufacture of freight cars and specialized freight-passenger cars, wooden and concrete ties, rail fittings, and shop machinery. All equipment will be purchased on the basis of international competitive bidding.

MAINTENANCE EXPENDITURES

► *First Quarter Up 3.9% Over First Quarter of 1966.*—Expenditures by Class I roads for maintenance of equipment, way and structures in the first quarter of 1967 were up about $29 million, compared with the first quarter of 1966, according to report of AAR Bureau of Railway Economics, summarized below:

	First Quarter 1967	First Quarter 1966	% Change
Maintenance of Way and Structures	$305,320,037	$296,295,834	3.0
Maintenance of Equipment	$472,993,047	$452,737,462	4.5
Totals	$778,313,084	$749,033,296	3.9

YOU OUGHT TO KNOW

Seaway project gets under way: The St. Lawrence Seaway Authority last week began work on a $110-million excavation project on the Welland section of the international waterway. A new eight-mile channel will replace a narrow and winding part of the waterway that now bisects a city of 38,000 people. The project will take six years to complete, during which 45 million yards of earth will be excavated to complete the new channel.

Speed-up of grain movements: Soo Line plans to establish new grain sampling and grain-car hold points in North Dakota to permit faster grain movements to Twin Cities and Twin Ports markets. The new procedure will be possible because Minnesota has dropped the requirement that grain destined for public warehouses in Minnesota be sampled and inspected in that state, even after it had undergone federal inspection in North Dakota. The new arrangement also is expected to aid in better car utilization.

Crown diversifies again: Midwestern interests which have substantial interests in two western railroads now also have a barge line. Henry Crown & Co. has acquired the stock of Sioux City and New Orleans Barge Lines, Inc., a major common carrier with operations throughout the Mississippi River system. Crown interests have been reported to hold about 9% of outstanding Rock Island stock; and earlier this year Henry Crown & Co. acquired 222,000 Burlington-held shares of Frisco common which, together with prior holdings, gave Crown about 16% of outstanding Frisco stocks (RA, Feb. 20, p. 7).

Economy, with luxury: Passengers who like that "dinner-in-the-diner" atmosphere will be able to get it on an economy tab this year on Northern Pacific's "Mainstreeter." The first economy buffet car went into service last week (June 6), two more cars will be added during the summer and the remaining two cars needed to completely equip the fleet will begin operation late in the year. NP notes that the cars will have that diner-decor—carpeting, picture windows, colorful interiors. But they'll also have food service "at very reasonable prices—less than a dollar for a basic meal which is both practical and nourishing." Cars, as remodeled in NP's Como Shops, will seat 38 persons. They'll operate on a self-service basis; and they'll make use of disposable tableware.

The school bell tolls: Railroad meets campus again this month, as 35 Santa Fe management personnel enroll for the 16th annual Institute of Business Economics course at the University of Southern California. During the six-week seminar, Santa Fe people from all departments and from all parts of the country will be involved in discussions with a panel of seven professors on questions of the economic, social and political aspects of the free-enterprise system. They'll also get training in such areas as public speaking and conference leadership.

Report on air-truck transport: The ICC has issued a staff report on the coordination of air-truck operations. Extent of coordination and competition of air and truck services, economic benefits, prospects for further development and regulatory problems are discussed. The 181-page report, "Air Truck Coordination and Competition," is available for 75 cents from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Aluminum markets bright: Aluminum is being used in the transportation industry at an increasing rate, having already surpassed the leading market, building construction. In 1966 transportation uses accounted for 2.10 billion pounds, up 10.6% over 1965. The construction industry used 1.96 billion pounds of the metal. Aluminum shipments for transportation purposes accounted for 23.1% of total shipments.

Truck tonnage: Intercity truck tonnage in the week ended May 27 was 0.1% below that of the previous week and 5.6% below the volume in the corresponding week of 1966, according to American Trucking Associations.

Current statistics

Net Income	
3 mos., 1967	$120,000,000
3 mos., 1966	172,000,000
Carloadings, revenue freight	
22 wks., 1967	11,775,347
22 wks., 1966	12,201,012
Freight cars on order	
May 1, 1967	34,960
May 1, 1966	59,317
Freight cars delivered	
4 mos., 1967	32,785
4 mos., 1966	29,300
Serviceable cars	
May 1, 1967	1,422,886
May 1, 1966	1,410,539

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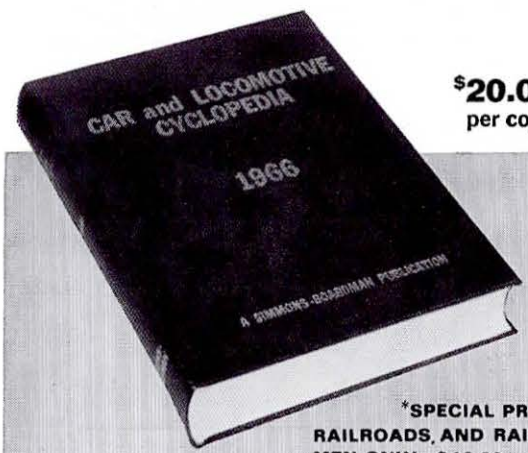

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VIEWPOINT

The big sell: Price? Service?

One of the more refreshing ideas to come down the tracks in quite a while was Santa Fe's recent notice-serving that it's going to start offering a premium TOFC/COFC service at a premium rate for Chicago-to-Los Angeles.

This is an ambitious undertaking—for both operating men and marketing men. But those who know Santa Fe well know that this is not a railroad given to any kind of premature hawking of its wares.

One intriguing part of the plan, of course, is that bit about the "premium rate." For years, railroads have tended to believe and act—so some observers think—as if their prime (if not sole) purpose in life was to be the low-cost, volume hauler. Railroads can be justifiably proud of what they've done to reduce shipping costs in a generally-inflationary economy. But perhaps—just perhaps—the emphasis on high volume and low cost has led the industry to overlook a certain potential in premium-type operations based strictly on service. It's this potential that Santa Fe will be exploring—in making, as the railroad puts it, "the acid test of customer acceptance of actual service."

So, somebody asks, why bother? So Santa Fe runs a freight train on a schedule equaling that of the "Super Chief." So, maybe, there will also be a New York-to-Los Angeles schedule with a New York-to-Chicago performance equal to that of a "Century" or a "Broadway." Why bother? Why try to compete, for instance, with the air-freight people? Their jets make the NY-LA run in six or seven hours. Even the common-carrier truckers, with sleeper-cab units and the Interstate highway system, aren't going to be too embarrassed by a 40-hour rail schedule from Chicago to the Coast.

Why bother? Well, for one thing, figure in railroad reliability. Then, consider the times—those we live in and those on the clock. In most industry, the five-day week is standard. Someday, the effective work-week may be four days. Now figure in railroad departures and arrivals, on this basis. And doesn't the *effective* speed of the new rail service look pretty good and pretty practical, then, in comparison with the *pure* (but maybe not usable) speed of the jet?

Finally—doesn't all this make a premium-service, premium-rate operation something worth trying?

TOFC/COFC—and the rules to live by

The ICC said, in 1964, that piggyback service offered through open-tariff publication must be made available to all comers, including competing truckers and water carriers, at the same rate.

A three-judge U.S. District Court panel, in 1965, reversed the ICC, on grounds that the Commission lacked the authority to compel railroads to provide such service on such a basis.

The U.S. Supreme Court, in 1967, has reversed the district court. In all probability, that means that the Commission's 1964 TOFC/COFC rules will be going into effect before many more weeks go by.

For some roads, a wracking readjustment may be coming up. Roads which had bitterly opposed Plan I piggyback, can't take kindly to the invitation that truckers now appear to have to enjoy Plans III and IV. And the fact that Plan III or IV revenues might be greater than those possibly obtainable under Plan I won't be much consolation to those who think involvement with motor carriers should come only under Plan V.

For other roads, particularly those with full-scale Plan I arrangements, changes may not be so sharply defined. The so-called transcontinental truckers may be expected to step up their use of Plans III and IV. But for many motor carriers there will still be noticeable rate-and-rule advantages to sticking with Plan I.

All this, of course, presumes that there will always be a Plan I—that railroad thinking won't now swing away from this kind of service.

Piggyback's growth will continue, no doubt of that. But all the hassling and the uncertainty does make one ponder what former Commissioner Webb had to say back in '64 when he was ICC vice chairman. Problems of intermodal competition, the blunt-spoken Webb observed, "cannot be obviated by economic planning or jammed into hard and fast policy molds, or resolved by the writing of ordinances."

on guard

This is an enlarged photograph of the end of a pencil. Graphite is ideal for writing (its name even means "to write"), but it is soft and needs protection. Hence the invention of the pencil. Because of man's propensity for making mistakes, no pencil is considered complete without an added invention—the eraser.

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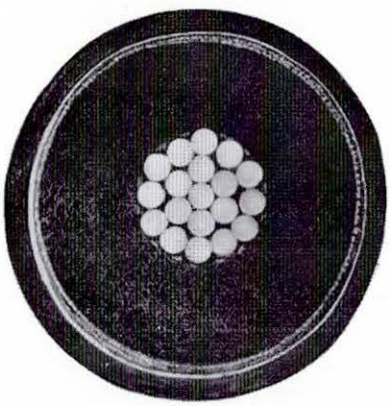

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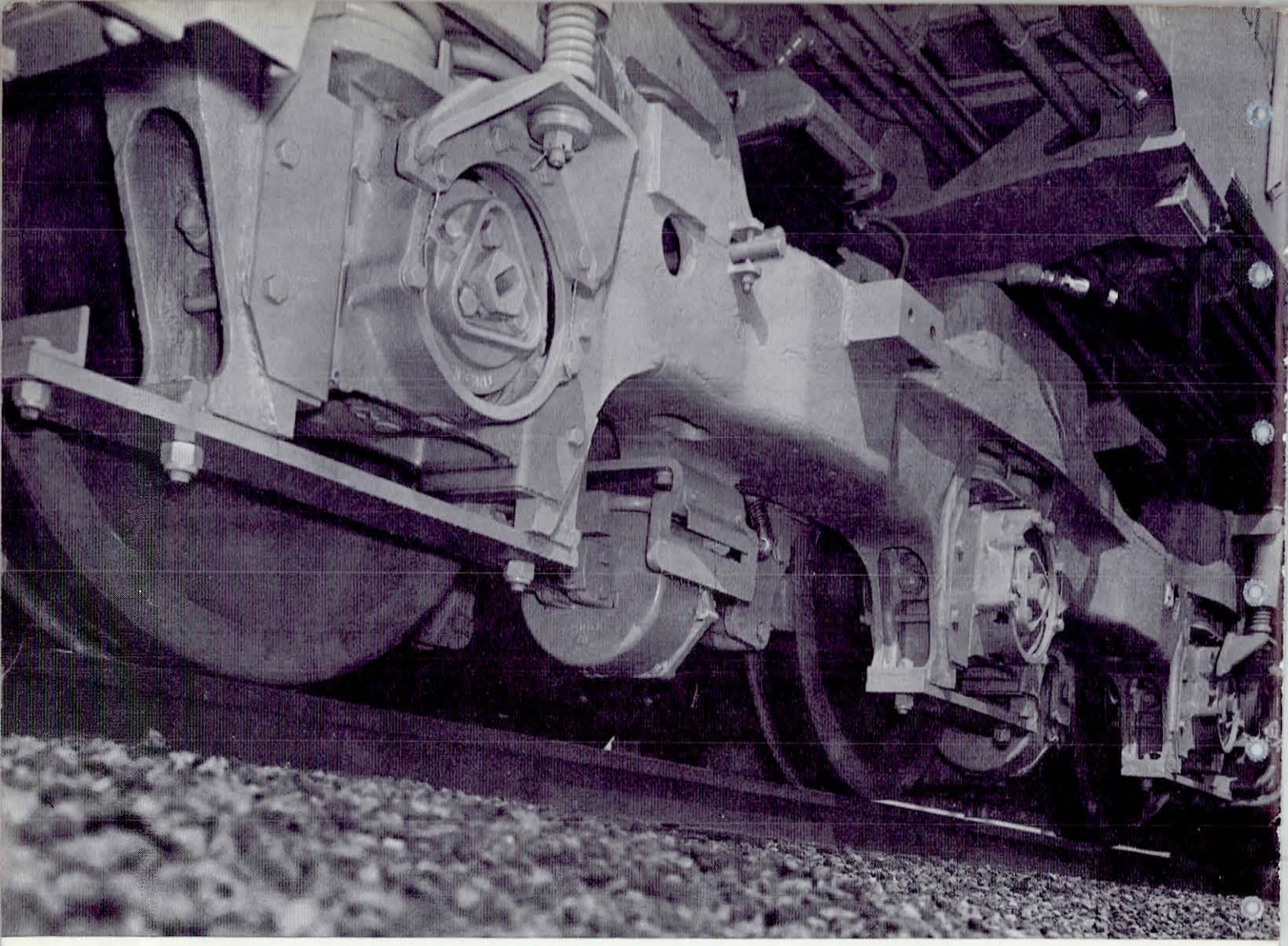

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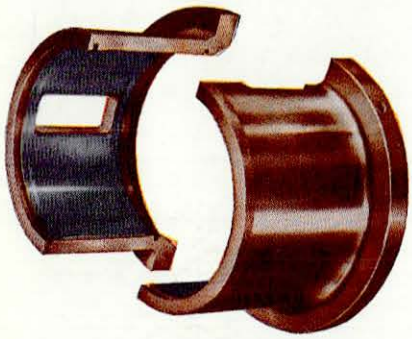

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